PROTECT Uninterruptible Power Supplies and Surge Protection

for Data & IT applications

Date 2011

PERFECT IN FORM AND FUNCTION AEG

The right UPS for every application.

AEG Power Solutions provides customized solutions for protection against network disruptions and the loss of data and costly downtime periods suffered as a result.

"Plug & Safe" options

Our range of compact UPS systems includes UPS devices for private use, systems which can be incorporated into racks for the IT cabinet and "Plug & Safe" parallel switchable modular UPS systems for computer centers and industry.

Product support

As a renowned and experienced company, AEG Power Solutions is there to support you by providing easily expandable products, reliable delivery and offering trade-oriented support and service packages.

Our group and global experience

AEG Power Solutions is a world leading provider of premium power electronics. Since September 2009, the group is a listed company through its holding company 3W Power holding SA. It offers one of the world's most comprehensive product and service portfolios in power conversion and control, for customers spanning the infrastructure markets of energy, telecom, lighting, transportation, general industrial, as well as new energies sectors. Since 2005, the company has developed a full range of products for the solar energy industry, from solar inverters to turnkey solutions and is investing in solutions that will enable distributed power generation and smart micro-grids.

Committed to providing peak performance

With more than 250 engineers, technicians and project managers, AEG Power Solutions achieves outstanding results in the field of research and development as well as in application engineering. This really pays off, as more than 70 active patents are currently pending in the power supply sector.

2006 FROST & SULLIVAN
UPS Product Line Leadership of the Year Award

Milestones

2009 AEG Power Solutions becomes a listed company through its holding company 3W Power SA

2008 Renaming of Saft Power Systems Group to AEG Power Solutions

2005 Saft Power Systems Group becomes independent

1998 Saft acquires AEG SVS Power Supply Systems GmbH in Belecke

1995 First UPS in the world with 100% digital control system called Protect 3.

1988 Development of a UPS with IGBT transistors (single and three phase)

1985 First rectifier Profitec S with microprocessor

1972 Development of the first switch mode power supply 5/25

1969 Development of the power controller

1965 Development of the three phase thyristor inverter

1961 Development of the single phase thyristor inverter

1951 DC supply for the „Deutsche Bundespost" (German Federal Post Office)

1947 Establishment of Saft Power Systems and development of a wide range of innovative battery charging equipment and power supply systems

1945 Establishment of the AEG plant in Warstein-Belecke with 25 employees

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	Protect Basic.	Protect Entertainment.	Protect TwinPower.
	Protection for all standard applications	Intelligent protection for entertainment equipment with Master-Slave-Function	Security for various applications with protected USB chargers
EQUIPMENT			
Standard earthing sockets	6 (GE6) / 7 (GE7)	6	4 + 1
EU sockets	-	-	2
Power switch	✓	-	✓
USB charger	-	-	2
Network protection	-	✓	-
Special features	cable fixture (Basic.GE7)	antenna connector	separated surge protector
APPLICATIONS			
Telephone systems/router	✓	✓	
Televisions & receivers			✓
Game consoles		✓	
Computer & periphery		✓	✓
Hifi & speakers	✓	✓	✓
Mobiles & MP3 players			✓
Small home appliances	✓	✓	

Protect Travel.	Protect Office.	Protect TwinPower.
Protection on the move with protected USB chargers	Compact protection for PC and peripheral equipment	Business solutions with surge protection and USB chargers
1	3	6
2	-	-
-	✓	✓
2	2	2
-	✓	✓
flexible mains input cable	audio interface	folding mechanism
✓	✓	✓
		✓
✓	✓	✓
	✓	✓
✓	✓	✓
		✓

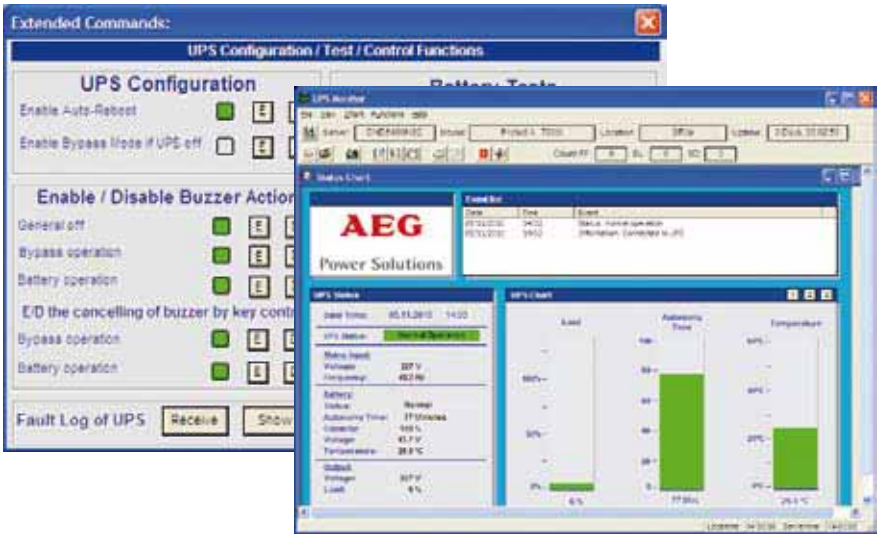
Protect Home. (GE/FR/UK) *

600 VA.
Comprehensive protection for satellite, TV, phone, fax or modem.

Protect A.

500 to 1400 VA.
Protects PCs, workstations and phone systems.

Page	18	20
Power (kVA)	0.6 kVA	0.5 - 1.4 kVA
Technology acc. to IEC 62040-3	VFD (offline)	VI (Line – interactive)
Input/Output	1 ph~/1 ph~	1 ph~/1 ph~
Parallel operation	no	no
Autonomy time (min.) at full load	3	3



Software "CompuWatch"

Our shutdown and UPS management software "CompuWatch" is provided on CD for all single and three-phase UPS devices

- Storage of system operations and graphical representation of the UPS values
- Definable (shutdown) processes can be triggered in a time or event-controlled manner via shell script
- Event-controlled transmission of messages via e-mail and SMS
- Communication via Novell interface, RS232, network and USB
- Support for all major operating systems
- further information can be found on page 44

* Available with german, french and UK sockets

Protect B.

750 to 3000 VA.
Rack or tower for server and network components with sinusoidal output.

22	
0.75 - 3 kVA	
VI (Line – interactive)	
1 ph~/1 ph~	
no	
5–65	

Protect B. PRO

750 to 3000 VA.
Efficient Rack/Tower-UPS with sinusoidal output for small servers and networks

24	
0.75 - 3 kVA	
VI (Line-interactive)	
1 ph~/1 ph~	
no	
4–44	

UPS topologies:

VFD

VFD – offline
UPS output depends upon supply (mains) voltage and frequency variations
Advantages: compact dimensions possible; low cost solution

VI

VI – line-interactive
UPS output depends upon supply (mains) frequency variations, but supply voltage are conditioned (independent)
Advantages: high efficiency, low running costs, extreme wide input voltage

VFI

VFI – onine
UPS output is independent of supply (mains) voltage and frequency variations
Advantages: highest availability, protection against all supply (mains) voltage disturbances; frequency converter mode possible

	Protect C. *	Protect C. Rack *
	1 to 10 kVA. Tower UPS for sensitive networks, small computer centres, Intranet and Internet servers.	1 to 6 kVA. UPS for rack usage to protect sensitive networks, small computer centres, Intranet and Internet servers.
Page	26	28
Power (kVA)	1 - 10 kVA	1 - 6 kVA
Technology acc. to IEC 62040-3	VFI (double conversion)	VFI (double conversion)
Input/Output	1 ph~/1 ph~	1 ph~/1 ph~
Parallel operation	yes (6 & 10 kVA)	no
Autonomy time (min.) at full load	5-60	5-60

Warranty

Our high standards and decades of experience mean we are also able to offer services which are cost-effective, efficient and quick. For the first 24 months after the initial purchase we provide a comprehensive advanced replacement service for the device and battery from the compact UPS series.

36 months warranty on UPS & battery

36 months warranty on UPS and battery

Register your UPS within two months from date of purchase and you will get the warranty extension "Pro-Care Garant" for free. So we provide an overall warranty for 36 months on UPS and battery.

The registration form is available at www.aegpartnernet.com

* Also available with enhanced battery charger for autonomy times over a period of hours.

Protect D.

1 to 10 kVA.
Compact UPS for rack usage protects server, networks and IT equipment.

30	
1 – 3 kVA (6 & 10 kVA in preparation)	
VFI (double conversion)	
1 ph~/1 ph~	
no	
3-60	

Protect 1.

10 to 20 kVA.
For medium-sized data centers, protection of cash till systems and facilities.

32	
10 – 20 kVA	
VFI (double conversion)	
3 ph~/1 ph~	
yes	
6–80	

Service and warranty

Additional service packages such as warranty extension up to 60 months are available during the first year after purchasing the UPS. We also recommend the optional maintenance during a long term usage of the UPS to assure reliability in critical situations. Repairs and individual service measures available on request!

Protect 1.M

4 to 24 kVA.
Scaleable and modular high-performance UPS system for the IT sector.

Protect 3.M 2.0

20 to 120 kVA.
Modular UPS with "hot swappable" design as scalable solution for medium-sized data centers.

Page	34	38
Power (kVA)	4 – 24 kVA	20 - 120 kVA
Technology acc. to IEC 62040-3	VFI (double conversion)	VFI (double conversion)
Input/Output	1 ph~ or 3 ph~/1 ph~	3 ph~/3 ph~
Parallel operation	yes (internal)	yes (internal & external)
Autonomy time (min.) at full load	10–90	free configurable

Combination Architecture

Combination Architecture

Combination Architecture from AEG Power Solutions is the integration of renewable and alternative energy sources into power systems to compensate for efficiency losses and/ or reduce carbon footprint.

Page 36

Protect 3.33

10 to 120 kVA.
High-availability-UPS for hosting, file servers, workstations and data centers, also for their integration in complex networks

40
10 - 120 kVA
VFI (double conversion)
3 ph~/3 ph~
yes
free configurable

Protect 4.33

160 to 1000 kVA.
High-availability-UPS for all critical applications in facility control systems, data centers, telecommunication, internet nodes, banks and insurances

42
160 - 1000 kVA
VFI (double conversion)
3 ph~/3 ph~
yes
free configurable

SuperCaps

SuperCaps have the ability to give fast peak power for indefinite cycles, they can be charged or discharged several times and also have a long lifetime up to 20 years. More efficient than conventional batteries, they do not release any heat during discharge and are up to 95% efficient in application. Additionally, they do not require special storage conditions and maintenance for assured operation. Their scalable and modular nature makes SuperCaps a compelling proposition for data center applications.

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When voltage rises ...

10 YEARS WARRANTY

Surge protection

Surges can be caused, for example,by lightning striking near your premises. Lightning induces voltage surges in conductors and cables that can damage any connected equipment. Switching in households, with conventional power supplies of fluorescent lamps for example, can also cause surges in the wiring system of a building.
The steadily growing number of electronic household appliances and entertainment units over the last few years has also increased the extent of damage. A single power surge can quickly lead to costly damages amounting to thousands of Euros, as smaller components often have close tolerance limits for the power supplied. If they are damaged, the entire unit has to be repaired. This is often complicated and costly. AEG surge solutions provide effective protection.

The following equipment is particularly at risk:

- Phone systems/router
- Television/LCD and plasma TVs
- Game consoles
- Computer & IT equipment
- TV receiver
- Speakers

Protect Basic.GE: Effective surge protection for sensitive home electronics

The surge protectors have five outlets for standard grounded power plugs, plus one or two wider-spaced outlets designed to accommodate larger power adapters.
The surge protectors include filters to suppress high-frequency interference voltages.
To prevent tangled cables, they are also fitted with a cable management bracket at one end.
Two LEDs indicate whether the power is on and surge protection is active. The power switch enables the mains supply to connected equipment to be cut off.

Key features:

- Five grounded outlets plus one or two adapter-spaced outlets
- Power cord (1.8 m) with angled plug
- Resetable automatic circuit breaker
- All outlets are fitted with child locks
- Prepared for wall-mounting
- LEDs indicating operating state and active surge protection
- Surge protection up to 36.000 A & 10 years warranty

Protect Basic.GE7
Cable fixture avoids tangled cables

Part number:
Protect Basic.GE6 # 600 000 7194
Protect Basic.GE7 # 600 000 7196

Protect Travel: Protection for travelling with additional USB charger

The Protect Travel. provides surge protection in the smallest of spaces. This makes it ideal for travelling or for applications in confined spaces. Often, the power quality in the country of travel is not sufficiently guaranteed. Be on the safe side and protect your laptop, cell phone or digital camera against overvoltage while on the move.
With the additional USB charger unit, you save on extra chargers.

Key features:

- 3 surge protected sockets
- 2 USB chargers for cell phones or MP3 players
- Indicator shows active surge protection
- Compact dimensions for travelling
- 90 degrees rotating mains input cord
- Surge protection up to 36.000 A & 10 years warranty

Protect Travel fits perfect into travel bags

Part number:
Protect Travel # 600 000 7747

Protect Office: Compact protection for PC and peripheral equipment

Protect Office. is the compact power distribution for your desktop. The 3 power outlets and network ports provide complete computer protection. During the development phase, the compactness of design was paramount. The design also allows you to connect a microphone and speakers. As a result, the annoying cable clutter on and behind the desk can be avoided. Any peripheral units can be switched off via the central power button thereby reducing standby costs.

Key features:

- 3 protected sockets, one of them rotateable
- 2 protected USB chargers
- Data-line protection for network cable (RJ45)
- Additional connectors for microphone and headset audio cable extension included
- Surge protection up to 36.000 A & 10 years warranty

protected audio in- and output;
audio cable extension (1.8 m) included

2 protected
USB chargers

90° rotateable
earth protected socket

network line
protection (RJ45)

Part number:
Protect Office # 600 000 7746

Protect Business: Business solution with surge protection

Protect your laptop and projector at conferences. Thanks to its folding mechanism, Protect Business. is suitable for conference tables and desktops. In addition, it offers surge protection for data cables (RJ45) and a dual USB charger unit.

Key features:

- 6 protected sockets
- Surge protection for network cables (RJ45) and 2 protected USB charger
- Foldable mechanism for conference tables
- Dust resistant and childproof sockets
- Surge protection up to 36.000 A & 10 years warranty

2 protected
USB charger

network line
protection (RJ45)

foldable mechanism
for space saving

Part number:
Protect Business # 600 000 7748

Protect Entertainment: Intelligent protection for entertainment equipment with Master-Slave-Function

Protect your sensitive equipment and save standby costs. With its Master-Slave-Function, the PROTECT Entertainment. is especially suited to modern home theatres and music systems. If the main unit (master) is turned off, then the electricity supply of the other peripheral units (slaves) will be automatically cut off. In addition, this conductor offers surge protection for antenna cables and network cables. As a result, all your equipment is optimally protected against power surges.

Key features:

- 1 master and 3 slave sockets, master/slave mode can be switched off; adjustable master trigger level
- 2 outlets always powered
- Surge protected antenna connector (coaxial)
- Surge protection for network cables (RJ45)
- Dust resistant and childproof sockets
- Surge protection up to 36.000 A & 10 years warranty

Master-Slave-Function can be switched off, so all outlets are powered

network line protection (RJ45)

surge protected antenna connector

Part number:
Protect Entertainment # 600 000 7745

Protect TwinPower: Security for various applications with protected USB chargers

With PROTECT TwinPower., AEG offers you a flexible voltage solution for the desktop. Its 7 power outlets provide enough room for all peripheral devices around the computer. Owing to its two-part design, the connection cables can be flexibly housed. The first part serves as a power supply for the computer, printer and monitor. The other part of the surge protective conductor has a power switch for disconnecting the TwinPower from the network. With this feature, all connected devices do not consume electricity when in standby.

Furthermore, the desk unit has 3 other power sockets. Cell phones and MP3 players can be charged using its two protected USB ports.

Key features:

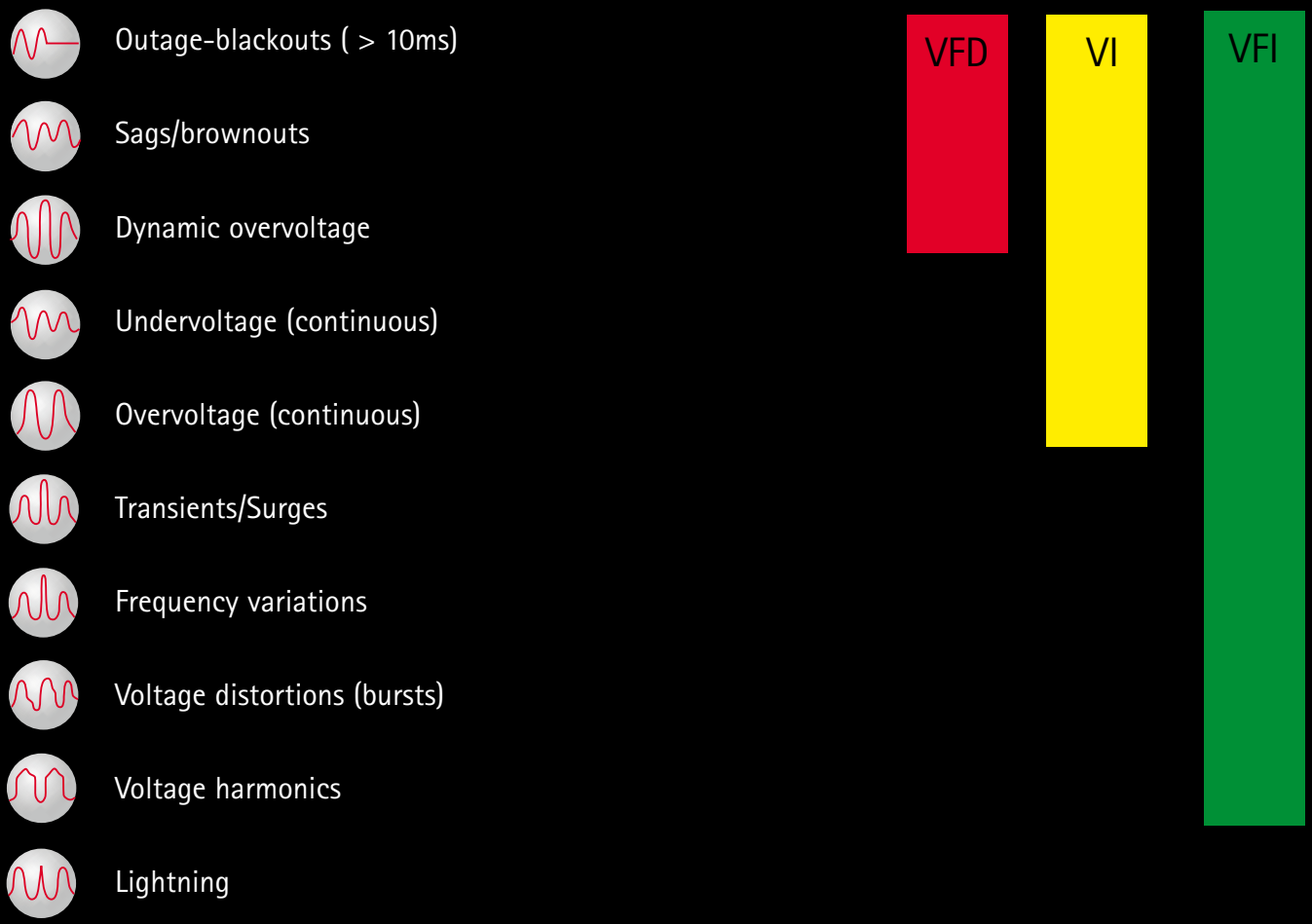
- Divided surge protector, one part always powered
- Overall 4 + 3 protected sockets
- 2 protected USB chargers
- Easily accessible power switch
- Surge protection up to 36.000 A & 10 years warranty

2 protected USB chargers

easy accessible power switch controls both parts of the TwinPower

Part number:
Protect TwinPower # 600 000 7749

Optimal protection for every application



Uninterruptible power supply

Mains voltage variations occur more often than expected. The consequences of this are crashes, loss of data and cost intensive downtimes. The solution is an uninterruptible power supply (UPS) which offers various level of protection.

There are three different UPS topologies offering different protection levels against all 10 types of mains disruption and variation.

The VFD technology protects against the mains variations caused by network disruptions, brownouts and voltage peaks.

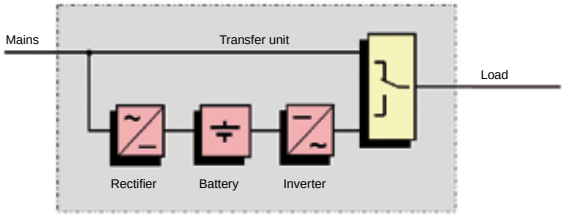
The VI technology protects against the most common mains variations. It's a good compromise between protection and costs.

The highly reliable VFI technology offers the best protection against mains disruptions and variantions. This technology provides a clean and secure supply of power for all critical applications and sensitive hardware.

VFD acc. to IEC 62040-3 (offline)

Advantages:

- most compact solutions possible
- high efficiency, low running costs
- low cost solutions



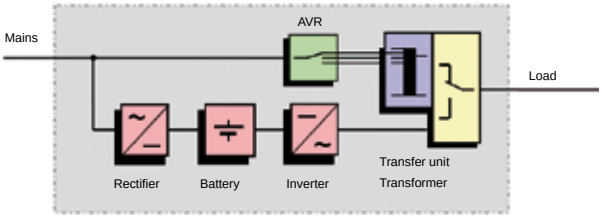
Disadvantages:

- transfer gap (some ms)
- load is fed by unfiltered voltage (no correction by the inverter)
- output voltage often not sinusoidal

VI acc. to IEC 62040-3 (line-interactive)

Advantages:

- high efficiency low running costs
- extremely wide input voltage
- robust concept



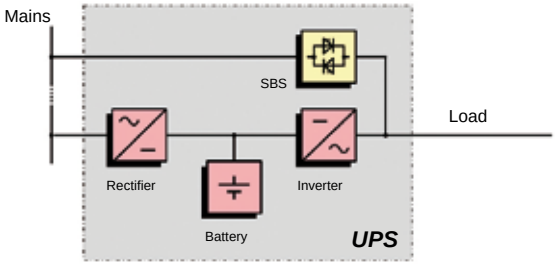
Disadvantages:

- transfer gap (some ms) AVR control rage/inverter transfer
- load is fed by unfiltered voltage (no correction by the inverter)

VFI acc. to IEC 62040-3 (online/double conversion)

Advantages:

- no transfer gap
- protection against all supply (mains) voltage disturbances
- sine-wave input current
- converter mode possible
- internal redundancy by addtional bypass



Disadvantages:

- lower efficiency in comparison to VI technology
- more cost intensive comparison to VFD technology

Reliability

Protect Home: Uninterrupted Protection for PCs

Protection against data loss through uninterrupted power protection with a size from 600 VA, the Protect Home. offers professional and economical protection against power outages, surges and sags.

Practical Protection

Especially for multi-media applications, the Protect Home. offers data line protection for telephones, faxes and modems as well as surge protection for satellite TV.

Connections are made directly to the UPS outlets. Protect Home. proves itself in critical situations with its high availability due to a sturdy overload and excess voltage protection.

Thanks to its user-friendly battery design Protect Home. emphasizes its remarkable economy.

Simple Operation

The "One-Board-Design" as well as LED notification provides clear information about the unit's most important operating conditions. With the addition of an audible alarm the user is provided with clear notification of critical events.

USB and RS232 Connections for Simple Control

The Protect Home. is quickly connected to a USB or RS232 interface. Through the special AEG shutdown software "CompuWatch", which is included, the unit allows you to control the most important operations as well as provides for automatic shutdown during longer power outages.

Protection against Power Outages and dangerous Power Spikes

- Microprocessor controlled, robust UPS technology for power outages and dangerous power spikes
- Complete CompuWatch-Software, "plug-and-play"
- USB and RS232 interface for overview and control from a PC
- Overvoltage protection for satellite TV's as well as dataline protection for telephones, faxes and modems
- User friendly battery design
- Free 36 months warranty on UPS and battery with advanced replacement service (registration required)

Input circuit breaker
Overload protection SAT TV/SAT receiver
Overload protection telephone/fax/modem
LED lights with traffic light function for clear information of the current operating condition
Mains connection
USB
RS232

Excellent Provisions: all around protection for satellite TV, Telephones, Faxes or Modems as well as USB and serial connections for communication with your PC.

and Multimedia.

Classification VFD SY 322 acc. to IEC 62040-3	PROTECT Home.
Type power	600 VA/300 W
Part number	600 000 3933
UPS INPUT	
Input voltage	230 Vac
Frequency	50 Hz
Current consumption (max.)	3.0 A
UPS OUTPUT	
Rated output voltage	230 Vac
Rated output voltage in battery mode	± 10 %
Frequency in battery mode	50 Hz ± 1 Hz
Output current	2.6 A
Transfer time at mains outage	2–6 ms (typical)
Voltage waveform	modified sinewave
Overload/Short Circuit Protection	yes
BATTERY	
Type	sealed, maintenance free
Autonomy time for 1 PC with 17" TFT	~ 10 Min.
Overload/deep discharge protection	yes
Recharge time (to 90 % of rated capacity)	8 h
COMMUNICATION	
Interfaces	USB and RS232 for status and measurement levels
Shutdown software (on CD)	Included for all typical operating systems (e.g. Windows, Linux, Mac)
Failure indicators (acoustical/optical)	Mains failure, overload, battery low, fault
GENERAL DATA	
Audible noise (1 m distance)	< 40 dB (A) (fanless)
Operating temperature range	0°–40° C
Humidity	20–90 %
EMC conformity	EN 50091-2 Class A, EN 61000-3-2, EN 61000-3-3
Product safety	EN62040-1-1
Overvoltage protection	surge protection RJ11 (Phone, Fax, Modem), F-Connector for Satellite TV
Operation altitude	up to 1000 m, at nominal load
Outlets	4 shockproof sockets
	(3 x with UPS-protection / 1 x with surge protection)
Equipment colour	Blackline
Size approx. W x H x D (mm)	125 x 85 x 300
Weight approx.	3.5 kg
Shipment	Mains-cord, USB and RS232 communication cable,
	management software "CompuWatch" (CD), user-manual
Certification	CE

Protect Home.FR

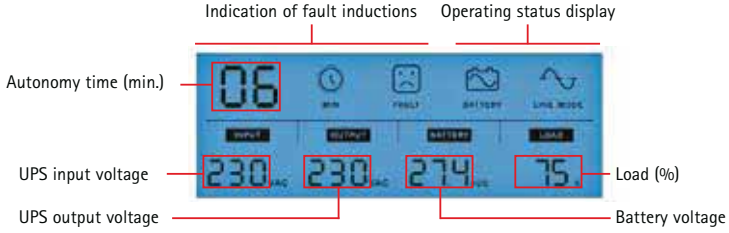
Protect Home.UK

Reliability

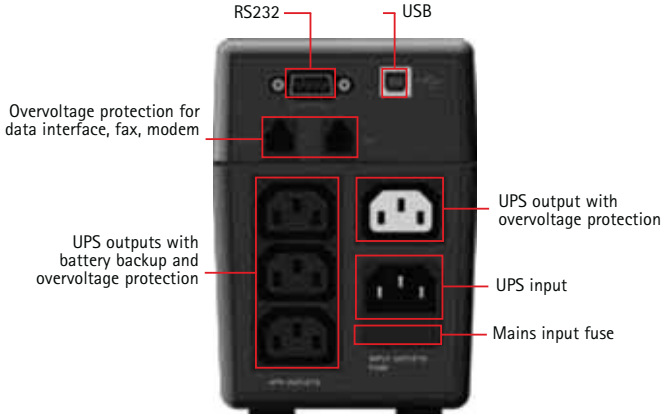
Protect A: Uninterruptible security for PCs, workst

Protection against power failure and voltage fluctuations

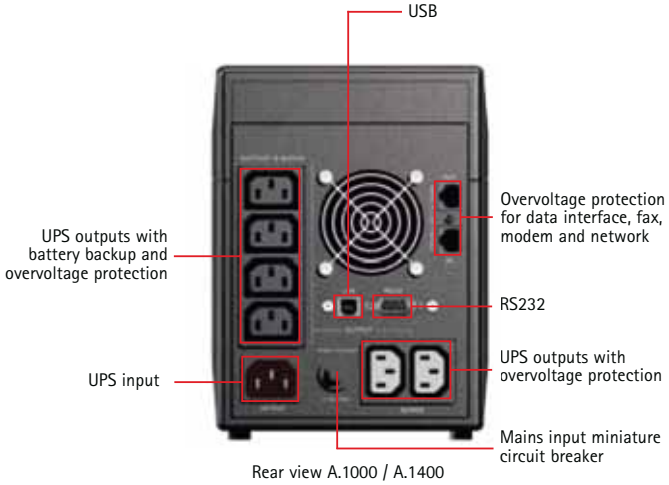
- Modern VI (line-interactive) technology against power failure and dangerous overvoltage
- Automatic voltage regulation against mains voltage deviations (AVR)
- Double mains filter against voltage peaks
- Easy installation ensured by cables supplied and optimum operation
- Use of sealed, maintenance-free lead-acid batteries with exhaustive discharge protection
- USB port and RS232-interface
- Data line protection for phone, fax, modem (RJ11) and from 1000 VA on inclusive network protection (RJ45)
- Free 36 months warranty on UPS and battery with advanced replacement service (registration required)



Display screen of Protect A.1000 / A.1400



Rear view A.500 / A.700


USB
UPS outputs with battery backup and overvoltage protection
Overvoltage protection for data interface, fax, modem and network
RS232
UPS input
UPS outputs with overvoltage protection
Mains input miniature circuit breaker

Rear view A.1000 / A.1400

ations and telephone systems.

Classification VI SY 322 acc. to IEC 62040-3	A. 500	A. 700	A. 1000	A. 1400
Type rating	500 VA	700 VA	1000 VA	1400 VA
	300 W	420 W	600 W	840 W
Part number	600 000 6435	600 000 6436	600 000 6437	600 000 6438
UPS INPUT				
Nominal connection voltage	220 Vac/230 Vac/240 Vac			
Voltage range without battery operation	160–290 Vac		170–280 Vac	
Frequency (automatic detection)	50 Hz/60 Hz ± 5 Hz			
UPS OUTPUT				
Rated output voltage/AVR technology	230 Vac			
Rated output voltage in battery operation	± 10 %			
Frequency in battery operation	50 Hz/60 Hz ± 1 Hz			
Nominal output current (at 230 Vac)	2,2 A	3,0 A	4,3 A	6,1 A
Changeover time in the event of mains failure	2–6 ms (typical)			
Voltage curve	approximated sinewave			
Overload protection	yes	yes	yes	yes
BATTERY				
Type	sealed, maintenance-free			
Autonomy time for 1 PC with 17" TFT	~ 15 min.	~ 20 min.	~ 30 min.	~ 40 min.
Exhaustive discharge protection/protection against excess load	yes	yes	yes	yes
Charging time (to 90 % of rated capacity)	8 hrs			
COMMUNICATION				
Interfaces	USB and RS232 (with status messages and measured values)			
Shutdown software (on CD)	included in delivery, for all major operating systems (e.g. Windows, Linux, Mac)			
Alarms (acoustic/optical)	mains failure, overload, battery discharged, replace battery, fault			
Status display			LCD with additional display of important aspects of the operating status like autonomy time	
GENERAL DATA				
Inherent noise (1 m distance)	< 40 dB (A) (fanless)		< 45 dB (A) (AC-operation < 40 dB (A)) speed-controlled fan	
Operating temperature range	0°–40° C			
Relative humidity	0–90 % (without condensation)			
Load outputs	3 + 1 x IEC 320 C13		4 + 2 x IEC 320 C13	
EMC conformity	EN 62040-2 Class C2, EN 61000-3-2, EN 61000-3-3			
Product safety	EN 62040-1-1			
Overvoltage protection for data lines	RJ11 (phone, fax, modem)		RJ11/RJ45 (add. network), Ethernet 10 & 100 Mbps	
Housing colour	Blackline			
Dimensions approx. W x H x D (mm)	100 x 140 x 330		145 x 205 x 405	
Weight approx.	6 kg	6.5 kg	9.5 kg	10 kg
Scope of delivery	Mains connection, 2 device connecting cables, management software "CompuWatch" (CD) incl. 1 network licence, USB and RS232 communication cable, operating instructions			
Conformity	CE			

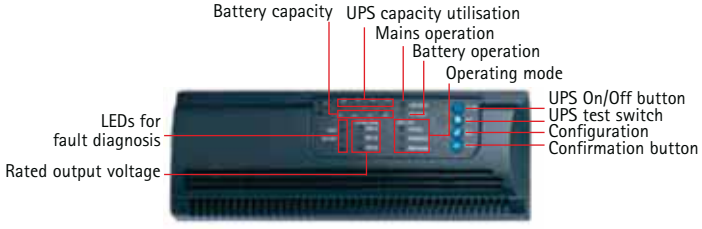
Reliability

Protect B: Uninterruptible security with sine wave

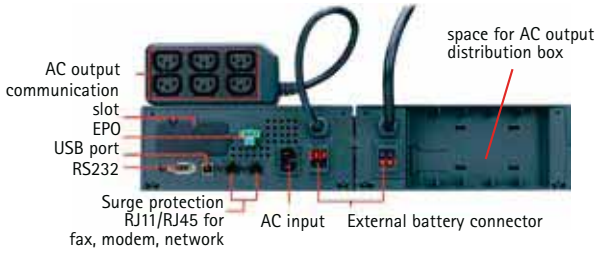
High level flexibility, intelligent functions

- Modern VI (line-interactive) protection technology with sine wave output voltage
- Compact construction/variable use due to combination design tower/rack
- Robust design: overload capability and short circuit protection
- Intelligent monitoring system with USB and RS232 interfaces
- User-friendly battery design in hot-swappable version (from 1500 VA)
- Operator friendly display for optimal readability/configuration
- Over voltage protection (RJ11/RJ45) for ISDN, Fax, modem and network
- Expansion slot for extension cards SNMP/potential free contacts (from 1500 VA)
- Free 36 months warranty on UPS and battery with advanced replacement service (registration required)

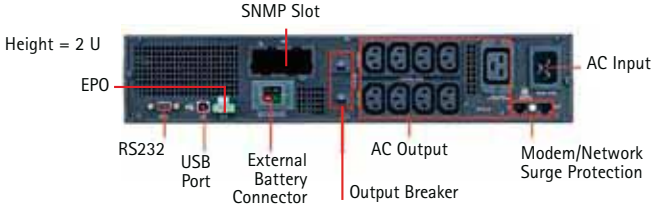
Protect B. operator panel



Protect B.1500 / B.2000 • Rear view



Protect B.3000 • Rear view



Protect B. Tower	autonomy time (full-/halfload) [in min.]				
	750 VA	1000 VA	1500 VA	2000 VA	3000 VA
Standard autonomy time	5 /15	5 /15	no integrated battery		5/14
1 additional BatteryPack	-	-	5/15	5/14	24/55
2 additional BatteryPacks	-	-	15/45	15/35	45/90
3 additional BatteryPacks	-	-	30/80	27/65	55/140
4 additional BatteryPacks	-	-	50/110	40/85	75/180
5 additional BatteryPacks	-	-	65/150	50/110	-

Protect B. Rack	autonomy time (full-/halfload) [in min.]				
	750 VA	1000 VA	1500 VA	2000 VA	3000 VA
Standard autonomy time	5 /15	5 /15	5 /15	5/14	5/14
1 additional 19" battery insert	-	-	30/80	27/65	24/55
2 additional 19" battery insert	-	-	65/150	50/110	45/90
3 additional 19" battery insert	-	-	-	-	55/140
4 additional 19" battery insert	-	-	-	-	75/180

output for server and network components.

Classification VI SS 211 acc. to IEC 62040-3	B. 750	B. 1000	B. 1500*	B. 2000*	B. 3000*
Type power	750 VA	1000 VA	1500 VA	2000 VA	3000 VA
	500 W	700 W	1050 W	1340 W	2100 W
Part number (BatteryPack)	600 000 3916	600 000 3917	600 000 3918	600 000 3919	600 000 3920
			600 000 4095	600 000 3921	600 000 4921
UPS INPUT					
Input voltage	220 Vac/230 Vac/240 Vac				
Input voltage range without battery mode	161/184–276 Vac (adjustable)				
Frequency (auto selection)	50 Hz/60 Hz ± 5 Hz (> 40 Hz generator operation)				
Current consumption (max.)	5 A	8 A	10 A	10 A	16 A
UPS OUTPUT					
Rated output voltage/AVR-technology	220 Vac/230 Vac/240 Vac				
Rated output voltage in battery mode	± 5 %				
Frequency in battery mode	50 Hz/60 Hz ± 0,1 Hz				
Output current (at 230 Vac)	3.2 A	4.3 A	6.5 A	8.7 A	13.0 A
Transfer time at mains outage	2–4 ms (typical), 6 ms max.				
Voltage waveform	sinusoidal				
Overload response at mains operation	110 % for 3 Min./150 % for 200 ms				
Overheat and short-circuit protection	yes	yes	yes	yes	yes
BATTERY					
Type	sealed, maintenance free; hot swappable (from 1500 VA)				
Rated voltage	24 Vdc		48 Vdc		96 Vdc
Autonomy time at rated load	5 min.	5 min.	5 min.	5 min.	5 min.
	-	-	Runtime extension with scalable ext. battery packs		
Overload/deep discharge protection	yes	yes	yes	yes	yes
Recharge time (to 90 % of rated capacity)	3 h	3 h	3 h	3 h	3 h
COMMUNICATION					
Interfaces	USB and RS232 for status and measurement levels, Slot for enhanced communications				
	(pot.-free contacts / SNMP), EPO port for emergency power off				
	Configuration panel for voltage preselection and setting of operating mode				
Shutdown software (on CD)	Included for all typical operating systems (e.g. Windows, Linux, Mac),				
	single licence CompuWatch with a 5 fold network licence				
Failure indicators (acoustical/optical)	Separate LED bar graphs for UPS load and battery capacity,				
	indicators for mains failure, overload, battery discharge, battery replace, failure				
GENERAL DATA					
Audible noise (1 m distance)	< 45 dB (A)				
Operating temperature range	0°–35° C				
EMC conformity	EN 50091-2 Class A, EN 61000-3-2, EN 61000-3-3				
Product safety	EN 62040-1-1				
Data lines protection	RJ11 (Phone, Fax, Modem) / RJ45 (Ethernet 10 Mbit/s / 100 Mbit/s)				
Humidity	0–90 % (non condensing)				
Installation height	up to 1000 m, at nominal load				
Number of outlets	4 x IEC 320 C13		6 x IEC 320 C13		8 x IEC 320 C13
			removable module		1 x IEC 320 C19
Equipment colour	Blackline				
Size approx. W x H x D (mm) UPS unit	235 x 88 x 383		217 x 88 x 414		438 x 88 x 582
Size approx. W x H x D (mm) battery unit	-	-	217 x 88 x 414		438 x 88 x 582
Weight approx. (kg) UPS unit	8.5 kg	9.5 kg	6.5 kg		31.5 kg
Weight approx. (kg) battery unit	-	-	12 kg		40.5 kg
Shipment	Mains-cord, 2 load-cords IEC 320-10A, USB and RS232 communication cable,				
	management software "CompuWatch" (CD), user-manual				
Certification	CE				

* only available until Q1 2011

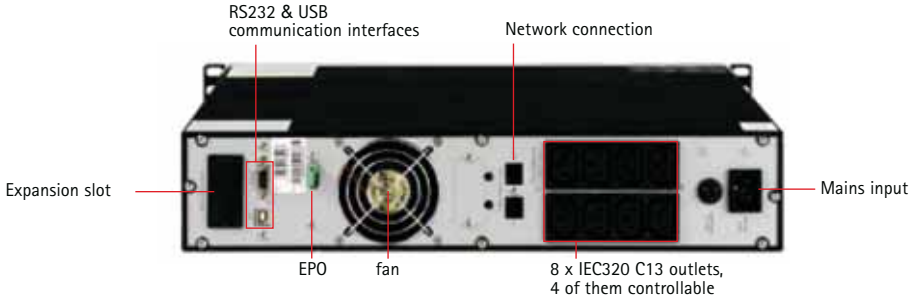
Reliability

Protect B. PRO: Efficient protection with innovative

High level flexibility, intelligent functions

- Modern VI (line-interactive) protection technology with sine wave output voltage
- Lower operating costs by higher efficiency (0.9lag power factor)
- compact construction and variable use due to combination design tower/rack, display rotateable
- robust design: overload capability and short circuit protection
- overvoltage protection (RJ11/RJ45) for phone, fax, modem and network
- configuration directly via multi-language display
- comprehensive display with most important UPS values
- intelligent monitoring with USB- and RS232 interfaces; parallel mode with expansion slot possible
- Free 36 months warranty on UPS and battery with advanced replacement service (registration required)

Protect B. PRO • Display & control terminal



Protect B.1000 PRO • Rear view

easy battery exchange by foldable front design:

rotatable display • device stands

features for server and networks.

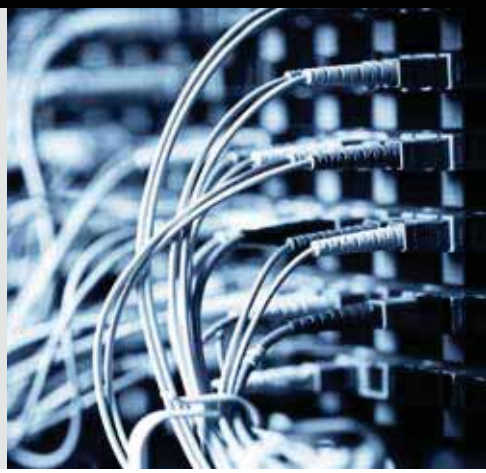
Classification VI SS 211 acc. to IEC 62040-3	B. 750 PRO	B. 1000 PRO	B. 1400 PRO	B. 1800 PRO	B. 2300 PRO	B. 3000 PRO
Type power	750 VA	1000 VA	1400 VA	1800 VA	2300 VA	3000 VA
	675 W	900 W	1260 W	1620 W	2070 W	2700 W
Part number	600 000 8422	600 000 8424	600 000 8426	600 000 8428 600 000 8429 (BP)	600 000 8431	600 000 8432
UPS INPUT						
Input voltage	220 Vac / 230 Vac / 240 Vac					
Input voltage range without battery mode	182 Vac to 280 Vac					
Frequency (auto selection)	50 Hz / 60 Hz ± 5Hz					
Current consumption (max.)	3.6 A	4.8 A	6.7 A	9.8 A	11 A	14.5 A
UPS OUTPUT						
Rated output voltage/AVR-technology	220 Vac / 230 Vac (Voreinstellung) / 240 Vac ± 10% (± 3% free running)					
Frequency in battery mode	50 Hz / 60 Hz ± 1Hz					
Output current (on 230Vac)	3.2 A	4.3 A	6.1 A	7.8 A	10 A	13 A
Transfer time at mains outage	2-6 ms (typical), 8 ms max.					
Voltage waveform	sinusoidal					
Overload response (VI operation)	< 120% for 5min. / 120-150% for 10s / >150% for 1s					
Overload response (battery operation)	< 110% for 1min. / 110-150% for 10s / 150-200% for 500ms					
BATTERY						
Type	sealed, maintenance free, hot swappable					
integrated	yes	yes	yes	no (external)	yes	yes
Rated voltage	24 Vdc		48 Vdc		72 Vdc	
Battery management	temperature compensated with overload and deep discharge protection; automatic battery test; batterypack detection					
Autonomy time in min. (full/half load, cos phi=0.9lag.)	4,5 / 10,5	3,5 / 9,5	5,5 / 13,5	10 / 28 (1xBP) 26 / 62 (2xBP) 44 / 100 (3xBP)	4 / 14	4 / 11
Charging time (to 90% of rated capacity)	6h					
COMMUNICATION						
User interface	LCD display with digital indication of UPS relevant values					
Interface	RS232 & USB (with status notfication and UPS figures), additional communication slot in parallel mode (SNMP/relay card); input contact for emergency power off					
Shutdown software (on CD)	5 network licenses for all common OS (e.g. Windows, Linux, Mac)					
Failure indicators (acoustical/optical)	3 LED indicators show UPS status, detailed indication via LCD display (mains failure, overload, battery discharge, battery replace, fan failure)					
GENERAL DATA						
Efficiency (in ECO mode)	> 97%					
(at whole AVR range)	> 90 %					
Audible noise at 1 m distance (max.)	≤ 45 dB (A)				≤ 55 dB(A)	
Ditto at ECO mode and max. 70% load	≤ 40 dB (A)				≤ 45 dB(A)	
Operating temperature range	0° bis +40°C					
Storage temperature range	-20° bis +50°C					
EMC conformity	EN 62040-2 Class C1, EN 61000-3-2, EN 61000-3-3					
Product safety	EN 62040-1					
Data lines protection	RJ11 (Phone, Fax, Modem) / RJ45 (Ethernet 10 Mbit/s / 100 Mbit/s)					
Humidity	0 - 90% (non condensing)					
Installation height / transportation	operation up to 1000m at full load / air freight up to 10600 m					
Mains input	IEC 320 C14				IEC 320 C20	
Number of outlets / of them controllable	8 / 4				7 / 3	
via connectors	8 x IEC320 C13				6 x IEC320 C13	
					1 x IEC320 C19	
Equipment colour	black metal case / silver front					
Size approx. W x H x D [mm]	440 (19") x 88 (2 U) x 420		440 (19") x 88 (2 U) x 520		440 (19") x 88 (2 U)x 640	
Net weight approx. [kg]	14,6	15,1	21,8	14,4 / 29,5 (BP)	29	29,5
Shipment	mains input cord (1 x EU, 1 x UK)					
Certification	CE					

Reliability

Protect C: High performance UPS-system for IT and el

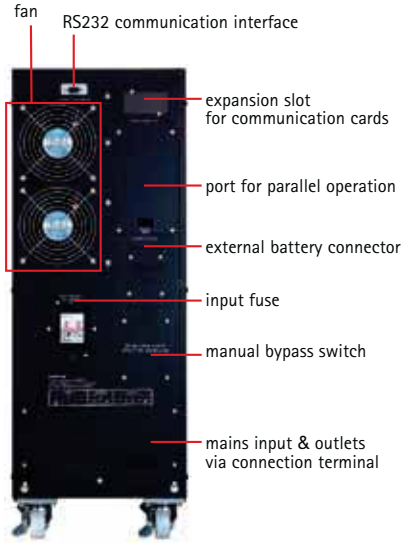
Reliable technology for your safety

- VFI-topology (double-conversion): Protects against all mains power disturbances
- Microprocessor control/DSP guarantees highest availability
- Sine wave shaped current consumption (High frequency PWM with IGBTs)
- Automatic bypass, additional integrated service bypass at 6 and 10 kVA (tower)
- Redundancy due to n+x configuration at 6 and 10 kVA; increase in power output/safety and availability
- Expansion slot for extension cards SNMP/relay-card/USB/potential free contacts
- Free 36 months warranty on UPS and battery with advanced replacement service (registration required)



Parallel operations

Protect C. 6000 and C. 10000 are also able to be switched parallel. Demand for greater availability by providing an active redundancy as well as a need for increased output power is met here. The combined power increase in connection with active redundancy can be achieved by the parallel switch having the ability to connect a maximum of 3 devices. The key factors are meeting the highest requirements for safety and availability as well as maintaining a cost efficient implementation.



Protect C. 10 kVA Rear view

Protect C. • Autonomy times

Protect C.	autonomy time (full-/halfload) [in min.]				
	1000 VA	2000 VA	3000 VA	6000 VA	10000 VA
Standard autonomy time	6/20	10/30	5/16	8/26	5/16
1 additional BatteryPack	38/97	55/130	30/85	26/67	16/42
2 additional BatteryPacks	76/170	106/237	60/149	47/112	27/60
3 additional BatteryPacks	-	-	-	60/157	42/97
4 additional BatteryPacks	-	-	-	94/203	53/118

ectronic data processing in medium-sized companies.

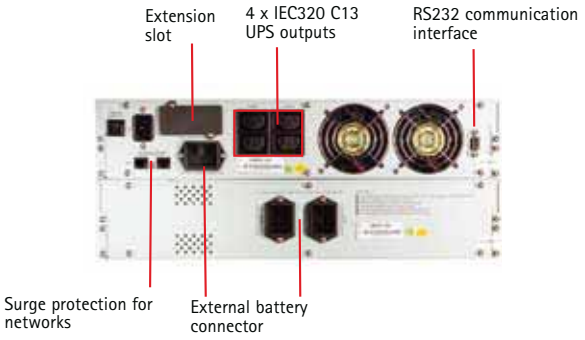
Classification VFI SS 211 acc. to IEC 62040-3 Classification VFI SS 111 acc. to IEC 62040-3		C. 1000	C. 2000	C. 3000	C. 6000	C. 10000
Type rating		1000 VA	2000 VA	3000 VA	6000 VA	10000 VA
		700 W	1400 W	2100 W	4200 W	7000 W
					can be operated in parallel mode	
Part number (Tower)		600 000 5735	600 000 5736	600 000 5738	600 000 5877	600 000 5878
Part number (BatteryPack)		600 000 5739	600 000 5740	600 000 5740	600 000 5879	600 000 5880
Part number (Tower S-Version)		600 000 4337	600 000 4338	600 000 4339	600 000 4340	600 000 4341
UPS INPUT						
Input voltage		220 Vac/230 Vac/240 Vac				
Input voltage range without battery mode		160–300 Vac			176–276 Vac	
Frequency		50 Hz/60 Hz ± 4 Hz				
Power factor		λ ≥ 0.96			λ ≥ 0.98	
Current consumption (max.)		7 A	10 A	16 A	31 A	50 A
UPS OUTPUT						
Rated output voltage		220 Vac/230 Vac/240 Vac ± 2 %			220 Vac/230 Vac/240 Vac ± 1 %	
Frequency in battery mode		50 Hz/60 Hz ± 0.2 %			50 Hz/60 Hz ± 0.1 %	
Output current (at 230 Vac)		4.3 A	8.7 A	13 A	26 A	43.4 A
Transfer time at mains outage		0 ms (zero transfer)				
Voltage waveform		sinusoidal, THD < 4 %				
Overload response (online mode)		140 % 30 s/150 % 300 ms			130 % 10 min/>130 % 1 s	
		subsequent, transfer to bypass mode				
Crest factor		3 : 1				
Short-circuit response		short-circuit-proof				
BATTERY						
Type		sealed, maintenance free				
Rated voltage		36 Vdc	96 Vdc		240 Vdc	
Overload/deep discharge protection		yes	yes	yes	yes	yes
Recharge time (to 90 % of rated capacity)		5 h	5 h	5 h	7 h	7 h
COMMUNICATION						
Interfaces		RS232 for UPS configuration, status and measurement levels, SNMP, AS 400, USB optional				
Shutdown software (on CD)		Included for all typical operating systems (e.g. Windows, Mac, Linux, Unix, Sun, etc),				
		single licence CompuWatch with a 5 fold network licence				
Failure indicators (acoustical/optical)		LED bar graph for UPS load and battery capacity,indicators for mains failure, overload,				
		battery discharge, battery replace, failure				
GENERAL DATA						
Efficiency total		≥ 85 %		≥ 88 %	> 90 %	
Audible noise (1 m distance)		< 45 dB (A)		< 50 dB (A)	< 55 dB (A)	
Operating temperature range		0°–40° C				
EMC conformity		EN 62040-2 Class C2, EN 61000-3-2, EN 61000-3-3			EN 50091-2	
Product safety		EN-62040-1				
Data lines protection		RJ11 (Phone, Fax, Modem) / RJ45 (Ethernet 10 Mbit/s / 100 Mbit/s)				
Humidity		0–90 % (non condensing)				
Installation height		up to 1000 m, at nominal load				
Number of outlets	Tower	4 x IEC 320 C13	6 x IEC 320 C13	4 x IEC 320 C13	Terminal block	
				+ 1 x IEC 320 C19		
Equipment colour		Blackline				
Size approx. W x H x d (mm)	Tower	145 x 220 x 400	192 x 340 x 460		260 x 717 x 570	
	Battery	integrated (not at S-version, same dimensions as tower)				
Weight approx.	Tower	15 kg	34 kg	35 kg	90 kg	93 kg
	Battery	19 kg	49 kg	49 kg	86 kg	89kg
Shipment		Mains-Cord, 3 load-cords (type C.1000, C.2000, C.3000), communication cable,				
		management software "CompuWatch", user-manual				
Certification		CE				

Reliability

Protect C. Rack: High performance UPS-system for IT

Due to true online/double-conversion technology Protect C. is well suited for mission-critical applications such as sensitive networks, small computer centers, Intranet and Internet servers, telecom applications as well as for industrial applications. The Protect C. employs VFI topology to protect loads against all public grid disturbances. On the input side sine wave shape current consumption is achieved for all load conditions. High integrated circuits reduce the number of electric connections and components as well as a robust IGBT module, the result: less and more robust components increasing reliability. An automatic bypass provides security during overload.

VFI



Protect C.2000R & C.2030R BP • Rear view

Reliable technology for your safety

- VFI-topology (double-conversion): Protects against all mains power disturbances
- Microprocessor control/DSP guarantees highest availability
- Sine wave shaped current consumption (High frequency PWM with IGBTs)
- Automatic bypass, additional integrated service bypass at 6 and 10 kVA (tower)
- Redundancy due to n+x configuration at 6 and 10 kVA; increase in power output/safety and availability
- Expansion slot for extension cards SNMP/relay-card/USB/ potential free contacts
- Free 36 months warranty on UPS and battery with advanced replacement service (registration required)

Protect C. Rack • Autonomy times

Protect C. Rack	autonomy time (full-/halfload) [in min.]			
	1000 VA	2000 VA	3000 VA	6000 VA
Standard autonomy time	6/20	-	-	-
1 additional BatteryPack	38/97	10/30	5/16	8/26
2 additional BatteryPacks	76/170	30/85	17/49	26/67
3 additional BatteryPacks	-	55/130	30/85	47/112
4 additional BatteryPacks	-	83/180	48/114	67/157
5 additional BatteryPacks	-	106/237	60/149	94/203

and electronic data processing in medium-sized companies.

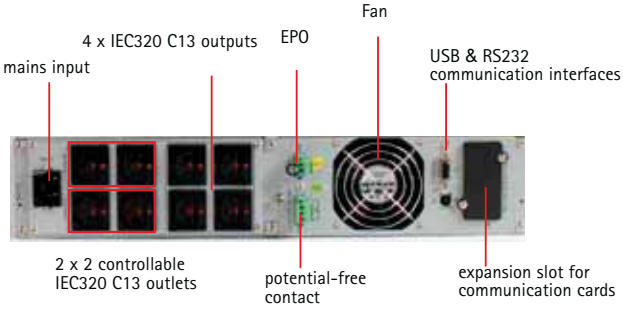
Classification VFI SS 211 acc. to IEC 62040-3 Classification VFI SS 111 acc. to IEC 62040-3		C. 1000 R	C. 2000 R	C. 3000 R	C. 6000 R
Type rating		1000 VA	2000 VA	3000 VA	6000 VA
		700 W	1400 W	2100 W	4200 W
Part number (Rack)		600 000 3846	600 000 3847	600 000 3848	600 000 3850
Part number (BatteryPack)		600 000 3851	600 000 3852	600 000 3852	600 000 3927
Part number (Rack S-Version)		600 000 4342	600 000 4343	600 000 4344	
UPS INPUT					
Input voltage		220 Vac/230 Vac/240 Vac			
Input voltage range without battery mode		160–300 Vac			176–276 Vac
Frequency		50 Hz/60 Hz ± 4 Hz			
Power factor		λ ≥ 0.96			λ ≥ 0.98
Current consumption (max.)		7 A	10 A	16 A	31 A
UPS OUTPUT					
Rated output voltage		220 Vac/230 Vac/240 Vac ± 2 %			220 Vac/230 Vac/240 Vac ± 1 %
Frequency in battery mode		50 Hz/60 Hz ± 0.2 %			50 Hz/60 Hz ± 0.1 %
Output current (at 230 Vac)		4,3 A	8,7 A	13 A	26 A
Transfer time at mains outage		0 ms (zero transfer)			
Voltage waveform		sinusoidal, THD < 4 %			
Overload response (online mode)		140 % 30 s/150 % 300 ms			130 % 10 min/>130 % 1 s
		subsequent, transfer to bypass mode			
Crest factor		3 : 1			
Short-circuit response		short-circuit-proof			
BATTERY					
Type		sealed, maintenance free			
Rated voltage		36 Vdc	96 Vdc		240 Vdc
Overload/deep discharge protection		yes	yes	yes	yes
Recharge time (to 90 % of rated capacity)		5 h	5 h	5 h	7 h
COMMUNICATION					
Interfaces		RS232 for UPS configuration, status and measurement levels, SNMP, AS 400, USB optional			
Shutdown software (on CD)		Included for all typical operating systems (e.g. Windows, Mac, Linux, Unix, Sun, etc),			
		single licence CompuWatch with a 5 fold network licence			
Failure indicators (acoustical/optical)		LED bar graph for UPS load and battery capacity,indicators for mains failure, overload,			
		battery discharge, battery replace, failure			
GENERAL DATA					
Efficiency total		≥ 85 %		≥ 88 %	> 90 %
Audible noise (1 m distance)		< 45 dB (A)		< 50 dB (A)	< 55 dB (A)
Operating temperature range		0°–40° C			
EMC conformity		EN 62040-2 Class C2, EN 61000-3-2, EN 61000-3-3			EN 50091-2
Product safety		EN-62040-1			
Data lines protection		RJ11 (Phone, Fax, Modem) / RJ45 (Ethernet 10 Mbit/s / 100 Mbit/s)			
Humidity		0–90 % (non condensing)			
Installation height		up to 1000 m, at nominal load			
Number of outlets	Rack	4 x IEC 320 C13		1 x IEC 320 C13	Permanent connection
				+ 1 x IEC 320 C19	+ 4 x IEC 320 C13
Equipment colour		Blackline			
Size approx. W x H x D (mm)	Rack	482.6 x 88 x 450		82.6 x 88 x 450	482.6 x 132 x 600
	Battery	integrated	482.6 x 88 x 450		482.6 x 132 x 600
Weight approx.	Rack	16.5 kg	10 kg	11 kg	18 kg
	Battery		29 kg	29 kg	64 kg
Shipment		Mains-Cord, 3 load-cords (type C.1000, C.2000, C.3000), communication cable,			
		management software "CompuWatch", user-manual			
Certification		CE			

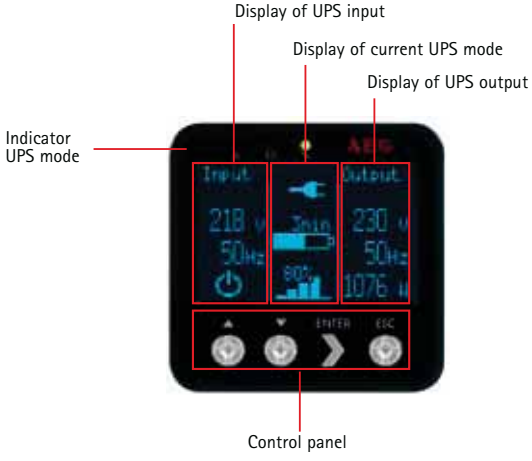
Reliability

Protect D: Efficient high-performance UPS ideal

Valuable features and easy control

- VFI topology (online double-conversion): protects against all mains power disturbances
- 20% higher available power by 0.9 lagging power factor
- Increase of efficiency through ECO and ECO+ mode
- Improved battery charging technology for optimal battery lifetime
- Hot-swappable batteries, easy exchange via flip-over cover
- Additional Battery Packs for individual scaling of autonomy times
- Expansion slot for communication cards, parallel operation via RS232/USB and SNMP
- Maximize your rack space as the UPS is only 2U including integrated batteries
- Controllable UPS outlets with innovative lock mechanism, prevents accidental disconnection of connected cables
- Graphical display shows UPS parameters, easy configuration of settings via control panel
- Data logger synchronized to real time clock
- Programmable potential-free contact & EPO switch
- Frequency converter mode
- Free 36 months warranty on UPS and battery with advanced replacement service (registration required)





Protect D.	autonomy time (full-/halfload) [in min.]			
(cos φ = 0.9 lagging)	1000 VA	1500 VA	2000 VA	3000 VA
Standard autonomy time	6/16	5,5/14	6/16,5	3,5/9
1 additional BatteryPack	31/68	25/61	33/71	18/45
2 additional BatteryPacks	51/110	46/112	59/129	34/84
3 additional BatteryPacks	82/192	69/172	88/183	53/122
4 additional BatteryPacks	100/246	90/221	119/260	69/165

extension slot • lockable outlets • easy battery exchange

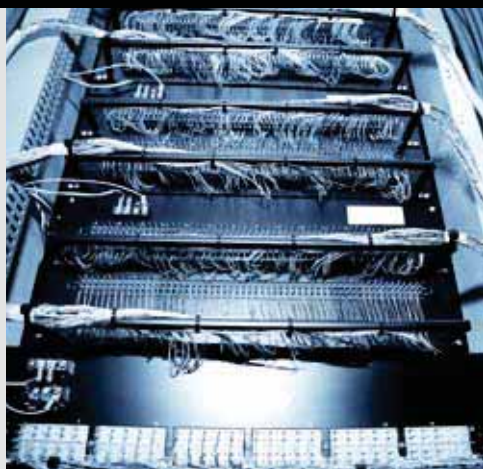
for rack usage.

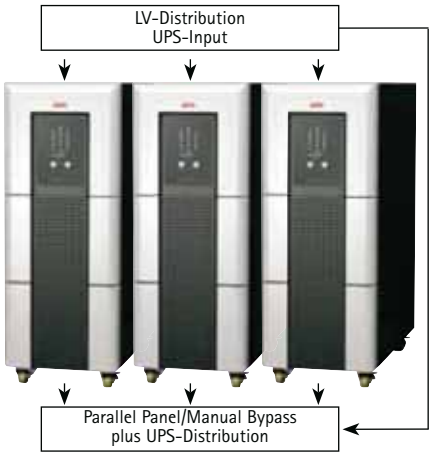
Classification VFI SS 211 acc. to IEC 62040-3		D. 1000	D. 1500	D. 2000	D. 3000
Type rating		1000 VA	1500 VA	2000 VA	3000 VA
		900 W	1350 W	1800 W	2700 W
Part number (UPS)		600 000 8434	600 000 8436	600 000 8437	600 000 8438
Part number (BatteryPack)		600 000 8441	600 000 8442	600 000 8443	
UPS INPUT					
Nominal input voltage		200 Vac/230 Vac/240 Vac			
Voltage range w/o battery operation (load-dependent)		160–276 Vac		180–276 Vac	
Frequency (automatic detection)		50 Hz/60 Hz ± 10%			
Mains current (system disturbance factor)		λ ≥ 0.99 (THDi ≤ 8%)			
Current consumption at full load (max.)		5 A	7.5 A	10 A	14 A
UPS OUTPUT					
Rated output voltage (adjustable)		208 Vac / 220 Vac / 230 Vac (default) / 240 Vac ± 2 %			
Frequency in battery/converter mode		50 Hz/60 Hz ± 0.25 Hz			
Nominal output current (at 230 Vac)		4.3 A	6.5 A	8.7 A	13 A
Changeover time at mains failure		0 ms (without interruption)			
Voltage curve shape		sinusoidal, distortion THD < 3 %			
Overload ability (double-conversion mode)		< 130% for 5 min. / 130% - 150% for 15 s			
Overload ability (battery mode)		< 130% for 12 s / 130% - 150% for 2 s			
Crest factor		3 : 1			
Short circuit ability		short-circuit-proof (4 x In for 100ms)			
BATTERY					
Type		sealed, maintenance-free, lead acid, integrated, hot-swappable			
Nominal DC voltage (intermediate circuit)		36 Vdc	48 Vdc	72 Vdc	
Battery management		temperature compensated with discharge protection, autom. battery test & battery pack detection			
Charging time (to 90 % of rated capacity)		3 h			
COMMUNICATION					
Interfaces		RS232, USB, communication slot (can be used parallel to RS232/USB),			
		terminals for EPO and a potential-free contact			
Shutdown software (on CD)		five network licences included (Windows, Linux, Mac, Unix, Sun etc.)			
Alarms (acoustical/optical)		3 LEDs arranged for quick operational status check, detailled indication via LCD display,			
		(alarms at mains failure, overload, battery discharged, replace battery, fan fault, RTC event logger)			
GENERAL DATA					
Efficiency at full load (ECO+ mode)		≥ 95 %		≥ 98 %	
Efficiency at full load (double-conversion mode)		> 88 %	> 89 %		> 90 %
Operating temperature range		0° to 40° C			
Inherent noise (1 m distance/full load)		< 45 dB (A)		< 52 dB (A)	
Humidity		< 95% (without condensation)			
EMC conformity		EN 62040-2 Class C1, EN 61000-3-2, EN 61000-3-3			
Product safety		EN 62040-1			
Max. site altitude		up to 3000 m at full load			
Load outputs	Rack	6 x IEC320 C13 (2+2)		8 x IEC 320 C13 (2+2)	6 x IEC 320 C13 (3+3)
					+ 1 x IEC 320 C19
Casing Material		Metal case with Aluminium front			
Dimensions W x H x D (mm)	Rack	482.6 (19") x 88 (2U) x 430		482.6 (19") x 88 (2U) x 600	
	Battery	482.6 (19") x 88 (2U) x 430		482.6 (19") x 88 (2U) x 600	
Weight approx.	Rack	16 kg	19.5 kg	29 kg	29.5 kg
	Battery	23 kg	28 kg	41 kg	41 kg
Delivery scope		mains input cable (1 x EU, 1 x UK), UPS management software „CompuWatch" (CD),			
		communication cables (RS232 & USB), operating and safety instructions			
		device connection cables 3 x IEC320 C13 (D.1000-D.2000), 3x IEC320 C13 + 1 x IEC320 C19 (D.3000)			
Conformity		CE			

Reliability

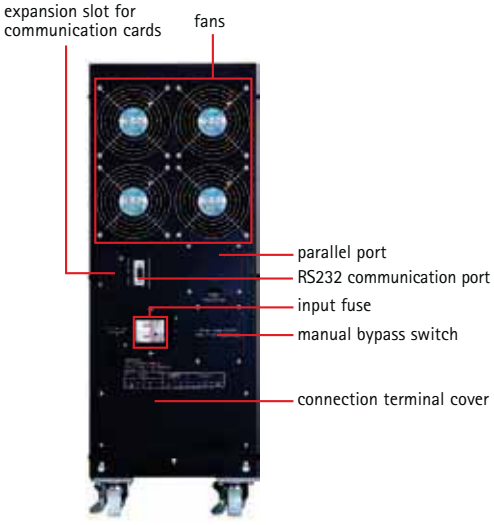
Protect 1: Online UPS systems for networks and

- True online UPS including static bypass (double-conversion VFI-technology)
- Power range 10,15, 20 kVA, space-saving design n + x technology (DSP controlled) to increase output power and/or for redundancy
- State-of-the-art: High reliability and efficiency by digital signal processing (DSP), CAN bus system, and high frequency IGBT technology.
- Uses battery systems with up to ten years battery service life, according to EUROBAT
- Communication via RS232, expansion slot for e.g. relaycard and SNMP
- 24 months warranty with pre-exchange service
- Free 36 months warranty on UPS and battery with advanced replacement service (registration required)





Protect 1. in parallel operation



Rear view Protect 1.200

AUTONOMY TIME – BATTERY PACKS GENERALLY IN Protect 1. DESIGN

Coupled battery cabinets	Autonomy time (full load/half load) [min.] Protect 1.100	Protect 1.150	Protect 1.200
1 x Protect 1.100 BP	16/42	-	-
2 x Protect 1.100 BP	42/97	-	-
3 x Protect 1.100 BP	60/134	-	-
1 x Protect 1. BP 20	19/47	10/29	6/19
2 x Protect 1. BP 20	47/103	29/68	19/47
3 x Protect 1. BP 20	78/177	47/103	34/62
4 x Protect 1. BP 20	103/243	68/153	47/103
5 x Protect 1. BP 20	138/312	85/202	63/138

"Plug & play" connection via a battery connection cable which is protected against polarity reversal

Ready-for-connection battery cabinets, preassembled

Service life of the integrated batteries: 10-12 years according to EUROBAT

computer centers 10–20 kVA.

Classification VFI SS 111 acc. to IEC 62040-3	Protect 1.100	Protect 1.150	Protect 1.200
	n + x technology scalable (parallel operation of up to 3 units)		
Type power	10 kVA	15 kVA	20 kVA
	7 kW	10.5 kW	14 kW
Part number (Tower)	600 000 4434	600 000 4435	600 000 4436
UPS INPUT			
Rated connected voltage	400/230 Vac (3/N/PE~)		
Votlage range without battery mode	304–478 Vac (Bypass: 176–261 Vac)		
Frequency (auto selection)	50 Hz/60 Hz ± 4 Hz		
Powerfactor	λ > 0.95		
Current consumption maximum	13 A/46 A (Bypass)	19 A/68 A (Bypass)	25 A/91 A (Bypass)
UPS OUTPUT			
Rated AC voltage (single-phase)	220 Vac/230 Vac/240 Vac ± 1 %		
Frequency in battery mode	50 Hz/60 Hz ± 0.1 % (slew rate 1 Hz/s)		
Output current (at 230 Vac)	43.4 A	65.2 A	86.9 A
Transfer time at mains failure	0 ms (zero transfer)		
Voltage wave form	sinusoidal, THD < 2 %		
Overload response	130 % for 10 min/> 130 % for 1 s		
	automatic transfer to bypass mode (zero transfer)		
Crest factor for non-linear load	3 : 1		
Short Circuit Reaction	short circuit proof		
BATTERY			
Rated voltage	240 Vdc		
Load characteristic	IU-characteristic curve (charging voltage 274 Vdc/charging current max. 4.2 Adc)		
Autonomy time	Runtime extension with scalable external battery packs		
Overload/deep discharge protection	yes		
COMMUNICATION			
Interface	RS232 with status message and measured values		
	Communication-Slot (potential-free contacts, USB, SNMP)		
Shutdown software (on CD)	Included for common Operating Systems (Windows, Linux, Mac)		
	single licence CompuWatch with a 5 fold network licence		
Alarms (audible/optical)	LED bar graph showing UPS load, battery capacity,		
	Indicators for mains failure, overload, battery low, battery replacement, fault		
GENERAL DATA			
Efficiency total AC-AC (at full load)	> 90 %		
Noise level (1 m distance)	≤ 55 dB (A)	≤ 60 dB (A)	
Operating temperature	0°–40° C		
Installation height	up to 1000 m above sea level, at nominal load		
EMC conformity	EN 62040-2 Class C3		
Product safety	EN 62040-1-1		
Humidity	0–95 % (non condensing)		
Equipment colour	Blackline		
Size approx. W x H x D (mm) UPS unit	260 x 720 x 670		
Size approx. W x H x D (mm) battery unit	260 x 720 x 570		
	(Protect 1.100 BP)		
	260 x 720 x 795		
	(Protect 1. BP 20)		
Weight approx. (kg) UPS unit	39 kg	55 kg	
Weight approx. (kg) battery unit	135 kg		
	(Protect 1.100 BP)		
	170 kg (Protect 1. BP 20)		
Shipment	Parallel operation cable, communication cable, management software		
	"CompuWatch" (CD), user-manual		
Certification	CE		

Reliability

Protect 1.M: Modular high performance UPS system

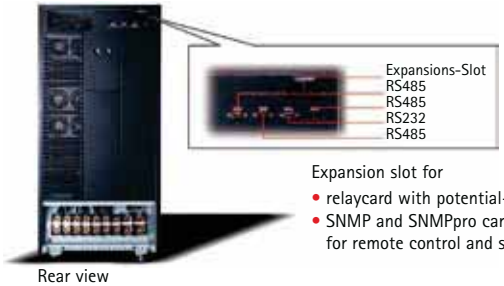
- High power reserves max. 24 kVA total output
- High safety reserves n+x technology
- Integrated static bypass switch
- 3 phase or 1 phase connection of the complete system; 1 phase output
- High autonomy time during power failure
- Manufacturer independent standard batteries
- Intelligent battery management
- Hot-swappable - easy to exchange modules
- Module design in slide-in type in the compact tower
- Communication module with LCD display, Dual monitoring interface with extension slot
- Software "CompuWatch" on CD

Advantages
of n + x technology
- higher reliability
- easy to increase overall capacity
- modules hot-swapable (without any interruption)

VFI

Front view

„Dual-Monitoring"-Interface



Rear view

Expansion slot for
- relaycard with potential-free contacts
- SNMP and SNMPpro cards with connector for remote control and sensors

n+x technology • Redundancy level

QUANTITY OF UPS MODULES

Load	1 module	2 modules	3 modules	4 modules	5 modules	6 modules
4 kVA	no redundancy	n+1 (4 kVA)	n+2 (8 kVA)	n+3 (12 kVA)	n+4 (16 kVA)	n+5 (20 kVA)
8 kVA		no redundancy	n+1 (4 kVA)	n+2 (8 kVA)	n+3 (12 kVA)	n+4 (16 kVA)
12 kVA			no redundancy	n+1 (4 kVA)	n+2 (8 kVA)	n+3 (12 kVA)
16 kVA				no redundancy	n+1 (4 kVA)	n+2 (8 kVA)
20 kVA					no redundancy	n+1 (4 kVA)
24 kVA						no redundancy

ALLOCATION OF THE BATTERY CABINETS AVAILABLE EX STOCK - IN PROTECT 1.M CONFIGURATION

	15 min.	20 min.	30 min.	40 min.	60 min.	75 min.	90 min.
4 kVA	– – –	– – –	– – –	1 x 1.M BP28	1 x 1.M BP42	– – –	1 x 1.M BP56
8 kVA	1 x 1.M BP28	– – –	1 x 1.M BP42	1 x 1.M BP56	1 x 1.M BP84	2 x 1.M BP65	1 x 1.M BP84
							1 x 1.M BP42
12 kVA	1 x 1.M BP42	1 x 1.M BP65	– – –	1 x 1.M BP84	2 x 1.M BP65	– – –	3 x 1.M BP65
16 kVA	1 x 1.M BP56	– – –	1 x 1.M BP84	1 x 1.M BP84	2 x 1.M BP84	3 x 1.M BP65	4 x 1.M BP65
				1 x 1.M BP42			
20 kVA	– – –	1 x 1.M BP84	1 x 1.M BP84	3 x 1.M BP65	2 x 1.M BP84	4 x 1.M BP65	5 x 1.M BP65
			1 x 1.M BP42		1 x 1.M BP42		
24 kVA	1x 1.M BP84	2 x 1.M BP65	1 x 1.M BP84	2 x 1.M BP84	4 x 1.M BP65	5 x 1.M BP65	6 x 1.M BP65
			1 x 1.M BP42				

Other designs are available on request.

for IT environments.

Classification VFI SS 111 acc. to IEC 62040-3	Protect 1.040	Protect 1.M
	UPS module	System unit with max. 6 x 4 kVA
Type power	4 kVA	24 kVA
	2.8 kW	16.8 kW
	n+x-scalable technology	
Part number	600 000 3928	600 000 3930
UPS INPUT		
Input voltage (auto. detection)	230 Vac (1/N/PE~) or 400/230 Vac (3/N/PE~)	
Input voltage range without battery mode	160–300 Vac (1 ph~) or 277–520 Vac (3 ph~)	
Frequency	50 Hz/60 Hz ± 4 Hz	
Current consumption (max.)	22 A (1 ph~) bzw. 7.3 A (3 ph~)	132 A (1 ph~) bzw. 44 A (3 ph~)
Power factor	$\lambda \geq 0.98$	
UPS OUTPUT		
Rated output voltage	220 Vac/230 Vac/240 Vac ± 2 %	
Frequency in battery mode	50 Hz/60 Hz ± 0.2 Hz	
Output current	17.4 A	104.4 A
Transfer time at mains outage	0 ms (zero transfer)	
Voltage waveform	sinusoidal, THD < 3 %	
Overload response (online mode)	125 % for 30 s/130 % for 2 s	
	subsequent, transfer to bypass mode (zero transfer)	
Crest factor	3 : 1	
BATTERY		
Nominal voltage	120 Vdc	
Load characteristic	IU-characteristic curve (charging voltage 137 Vdc/charging current max. 3.5 Adc)	
Autonomy time	free to choose runtime extension with scalable external battery pack	
	(available modules with 28, 42 or 65 Ah),	
	service life: 10-12 years (EUROBAT)	
Overload/deep discharge protection	yes	
COMMUNICATION		
Interfaces (dual monitoring)	RS232/RS485 for status and measurement levels,	
	communication slot (for volt free contacts/SNMP)	
Shutdown software (on CD)	Included for all typical operating systems	
	(e.g. Windows, Mac, Linux, Unix, FreeBSD, Novell, Sun, etc.),	
	single licence CompuWatch with a 5 fold network licence	
Failure indicators (acoustic/visual display)	LCD with digital information of input and output parameters	
	(voltage, frequency, power etc.), battery parameter incl. failure diagnosis by password	
	protected level, LED for status and main failures	
GENERAL DATA		
Efficiency	> 89 %	> 88 %
Audible noise (1 m distance)	< 55 dB (A)	< 62 dB (A)
Operating temperature range	0°–40° C	
EMC conformity	EN 62040-2 Class C2	
Product safety	EN 62040-1-1	
Humidity	20 %–90 %	
Installation height	up to 1500 m, at nominal load	
Equipment colour	Black	
Size approx. W x H x D (mm) UPS unit	442 x 965 x 700 (chassis)/module: 405 x 87 x 530	
Size approx. W x H x D (mm) battery unit	442 x 965 x 700	
Weight approx. (kg) UPS unit	75 kg (chassis) + 15 kg each module	
Weight approx. (kg) battery unit	MBP 28: 160 kg, MBP 42: 200 kg, MBP 56: 255 kg, MBP 65: 270 kg,	
	MBP 84: 335 kg	
Shipment	Parallel operation cable, communication cable, management software "CompuWatch" (CD), user-manual	
Certification	CE	

Next-generation UPS for a new world

Combination Architecture

Ever-tightening controls on carbon emissions. The need for ever greater computing capacity. And the challenge of controlling power costs. Always at the forefront of power innovation, AEG Power Solutions is first to recognise the growing pressure on data centres to control power consumption and increase energy efficiency. And with UPS systems accounting for a substantial part of energy used by today's facilities, we understand that optimising efficiency is a critical step forward in rising to meet these challenges.

That's why we're developing Combination Architecture© – a range of next-generation UPS systems capable of harnessing renewable and alternative energy sources and storage. By using lower carbon alternatives, our unique Combination Architecture© systems will deliver what you need most – a way to drive down infrastructure operating costs, boost computing capacity and reduce carbon footprint to help make our world greener and cleaner.

AEG Power Solutions' Combination Architecture© includes innovative standby and power protection systems that can utilise low-impact, cost-efficient technologies as secondary sources of power, including:

- Fuel cells
- SuperCaps© (ultracapacitors)
- Solar cell and wind power energy

Combination Architecture

The SuperCaps© Advantage

Combination Architecture© from AEG Power Solutions brings you the SuperCaps© advantage to deliver a highly effective energy storage solution for data centres and mission critical power applications. SuperCaps© (or ultracapacitors) provide an environmentally effective option for businesses that are concerned with reducing energy consumption, lowering total cost of ownership and carbon footprint.

SuperCaps© offer the functionality, life cycle costs, and reliability characteristics required for use in the power systems which ensure continuous availability. Their high power density is ideally suited to supply bridge power for short periods of around 30 to 100 seconds, while secondary generation systems come up to speed. On the other hand, battery banks are typically sized to deliver power over longer periods. In fact if sized for the actual duration required, batteries may have difficulty supplying the necessary power which often results in systems which are physically much larger than necessary. SuperCaps© operate on a different principle to batteries and are capable of holding a charge for extended periods without any loss of capacity.

Batteries, however, by virtue of their electro chemical composition, require high maintenance with cell replacement not uncommon and still present the risk of not having sufficient capacity just when it's needed most. SuperCaps© provide fast, short-term peak power for indefinite cycles, They can be charged or discharged several times, charge isntantly and have a long lifetime up to 20 years. They do not release any heat during discharge and are up to 95% efficient in application – more efficient, in fact, than conventional batteries. Additionally, SuperCaps© do not require special storage conditions and maintenance for assured operation. Their scalable and modular nature makes them an ideal solution for data centre applications. They are compact compared to batteries, and, using 3-D Flexibility© from AEG Power Solutions, they can be combined with other technologies including fuel cells to provide highly effective energy storage solutions.

Get 3-D Flexibility© and reduce the carbon footprint of your power infrastructure

Standby power protection from AEG Power Solutions adds 3-D Flexibility© to your energy storage options. Whether you choose any of our standard and modular UPS systems for your data centre, or ask us to design a custom solution to meet a specific requirement, 3-D Flexibility© gives you the option to specify how energy is stored to ensure ride through power transients. For example, you could select a super capacitor storage solution to replace or enhance a bank of batteries.

Just ask us how we can design a solution, incorporating fuel cell, SuperCap© or battery storage to help reduce the environmental impact of your facility and reduce its running costs.

Power Safety

Protect 3.M 2.0: Modular UPS system for medium

A technically convincing solution that is flexible to fulfill the growing requirements of modern datacenters:

- Sufficient power and security reserves
- Easy handling and low maintenance costs
- Optimal price-performance ratio

Power failures, overloads and undervoltage can lead in the worst case to loss of data. Denied access to company-critical applications almost always leads to operational disturbances, even to loss of production. Networks, workstations, intranet and internet servers, telecommunications and other company applications must therefore be available at all times and must also be protected against any disturbances to the power supply. Implementation of the VFI (double conversion) technology of AEG's Protect 3.M 2.0 protects your system reliably against all power supply problems, e.g. power failure, surges, undervoltage, voltage fluctuations, non-linear distortions, frequency fluctuations, etc.

Modularity provides safety reserves
Protect 3.M 2.0 is an uninterruptible power supply which is highly reliable and efficient. The modular design of Protect 3.M 2.0 permits a flexible increase of the UPS power up to 480 kVA maximum with 20 kVA automatic contact hot-swap modules. This technology allows the system to be extended during operation. Modules are hot-swappable. Additional cabling is not necessary.

- Hot-swappable – easy to exchange modules
  - Simple plug & play principle for replacing modules
  - Module removal/addition during operation
  - Automatic connection, no additional cable connections necessary
- High-power reserves with a maximum total power output of 480 kVA
  - Up to 6 UPS modules with 20 kVA each can be installed in one P3.M 2.0 cabinet
  - Up to 4 UPS cabinets up to 120 kVA each can be paralleled
- Parallel Operation
  N+X technology allows a flexible adjustment of the power capacity of your UPS at any time. At the same time the modular construction provides active parallel redundancy and thereby a high safety reservoir.

Integrated bypass switch
- Passive redundancy by static Integrated bypass switch increases availability of the whole system during overload.
- An additional integrated manual bypass switch protects the system against operational failure and allows bypassing the UPS for maintenance.

Intelligent monitoring
The Protect 3.M 2.0 uses an efficient communication module to collect all relevant data of the several modules over the internal network. All information are displayed clearly on the LCD for easier UPS handling.

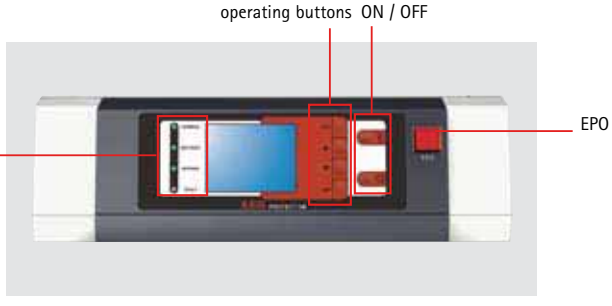
Battery management
As far as operation and service are concerned, intelligent monitoring via the display or system software, as well as the possibility of using standard batteries, make Protect 3.M 2.0 your preferred choice system.
- **Manufacturer-independent standard batteries**
  for initial equipment or later replacement.
- **Scheduled battery test**
  for extended battery lifecycle.
- **Intelligent battery management;**
  battery current measuring to provide useful charging & discharging data for "advanced battery management".

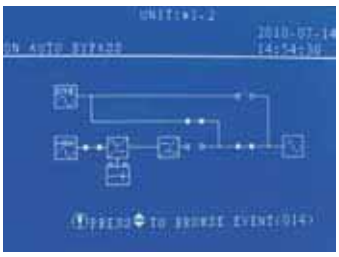
Additional features
- Increased power factor (pf > 0.99)
- Less pollution (THDi < 5%)
- Higher efficiency > 94% (at 25% load)
- ECO mode (efficiency > 97%)
- IGBT technology
- Separate rectifier and dual bypass input
- Full digital control (DSP)
- PFC technology
- Load depending fan speed
- Multi-language and big LCD for user-friendly handling
- Communication via SNMP adapter and RS232/RS485 interfaces

Terminals • Communication interfaces • Module lock

-sized datacenters

Classification VFI SS 111 acc. to IEC 62040-3	Protect 3.M 80	Protect 3.M 120
Type power	80 kVA	120 kVA
	64 KW	96 KW
Max. modules per rack	4	6
UPS INPUT		
Input voltage	400/230Vac	
Frequency	50/60Hz (Auto-Selectable)	
Frequency range	+/-5 Hz	
Power factor	> 0.99 (Full Load)	
THD (i)	<5%	
UPS OUTPUT		
Rated output voltage	400/230Vac	
Frequency	50/60Hz +/-0,05%	
THD (v)	≤3%	
Transfer time at mains outage	0 ms (zero transfer)	
Voltage waveform	sinusoidal	
Overload response (online mode)	<125% for 10 min. <150% for 1 min >150% for 0,3 sec	
Crest factor	2,5 : 1	
BATTERY		
Nominal voltage	± 240 Vdc	
Autonomy time	Free to choose runtime extension with additional external battery	
Overload/deep discharge protection	yes	
COMMUNICATION		
Interfaces	RS232/RS485 for status and measurement values, communication slot (for pot.-free contacts and SNMP adapter)	
Failure indicators (acoustic/optical)	LCD with digital information of input and output parameters (voltage, frequency, power etc.) battery parameter etc., LED for status and main failures	
GENERAL DATA		
Efficiency (total)	< 95% (< 98% in ECO Mode)	
Audible noise (1 m distance)	64 to 69 dBA (depends on load)	
Operating temperature range	0 – 40 °C	
EMC conformity	EN62040-2 Class C3, EN 61000-6-2, EN 61000-6-4	
Product safety	EN62040-1	
Humidity	<90%	
Installation height	up to 3000 m at nominal load	
Equipment colour	RAL 7035	
WEIGHTS AND DIMENSIONS		
Weight approx. (module)	30 kg	
(Empty rack)	139 kg	204 kg
(with maximum modules)	259 kg	384 kg
Size approx. W x H x D (mm)	520 x 1165 x 910	520 x 1665 x 975





Display Protect 3.M

Power Safety

Protect 3.33: Online UPS system for datacenters a

Robust and Reliable
Protect 3.33 is extremely robust, both electrically and mechanically.
It is custom-designed for use in harsh industrial environments.

The UPS offers a very high level of protection for users and connected equipment
- High intermittent overload capacity
- High level short circuit strength
- N-conductor with full loading capacity (3 phase systems)
- Excellent dynamic response can easily handle high cyclic loads

Exact solutions engineered for each application
- Single systems
- Parallel systems
- Other input/output voltages

Additional system equipment
- Bypass transformer
- Voltage stabilizer
- Maintenance Bypass Switch
- AC distribution panels
- Battery cubicles
- Explosion proof battery circuit breaker enclosures

Unique Design
- Parallel operation for capacity and performance
  Flexible Multi Master Technology and CAN bus communication enables up to 8 UPS to be connected in parallel for increased power, redundancy or system upgrade.
- Parallel UPS can be operated with a central battery.
- Three microprocessor control system
  These microprocessors simultaneously monitor and control the rectifier, inverter and static switch units. This control has been specially designed to provide a problem-free power supply.

Key features
- Full digital control
  - High reliability (no potentiometers)
  - High flexibility (software controlled parameters)
  - Fast dynamic response
- Ergonomic control unit with multilingual graphical display
- High effi ciency even at low output power
  - Reduced operating costs
  - Reduced air conditioning requirements
  - Reduced battery Ah requirements
- Oversized components
  - Higher reliability and MTBF
  - High overload capacity
- Output isolation transformer
- Standardized modules
- Low maintenance
- Short circuit resistant
- More EMC robust than UPS Standard IEC 62040-2 by a factor of 2 to 3
- Redundant controls
  Separate microprocessors for Rectifier, Inverter, Static Switch and Communication
- Separate and redundant power supplies for control cards

VFI

- High protection degree (IP rating) possible
  Ready for harsh environment
- Strong mechanical design
- Remote monitoring and control capabilities (programmable)
- Capable of communicating with computer and control systems (SCADA, ESD, DCS, BMS)
  - Modbus/JBus
  - Profi bus
  - Monitoring software
  - Ethernet, SNMP ...
- System and alarm status via volt-free contacts
- Complete system
  Protect 3.33 is a true on-line double conversion UPS classified as VFI SS 111 according to IEC 62040-3.
- This outstanding UPS range features
  - On-line operation ensuring permanent service
  - Microprocessor-driven control and command system to provide reliable power supply
- A battery management system that boosts life time and cuts operating costs
- A broad range of output power ratings, battery autonomies and options to meet the needs of complex industrial applications.
- The UPS offers a very high level of protection for users and connected equipment
  - High intermittent overload capacity
  - High level short circuit strength
  - N-conductor with full loading capacity (3 phase systems)
  - Excellent dynamic response can easily handle high cyclic loads.
- Redundant and individually monitored fans
- Compatible with vented Lead Acid, Valve Regulated Lead Acid (VRLA) and Nickel Cadmium batteries
- Intelligent Battery management, test and status diagnostics
- Designed to operate with Diesel Generators
- Frequency converter operation
- EcoMode+ (as option)

nd internet nodes

MODEL	3.33-10	3.33-20	3.33-30	3.33-40	3.33-60	3.33-80	3.33-100	3.33-120
Type power (at cos φ 0.8 lag) in kVA	10	20	30	40	60	80	100	120
RECTIFIER UNIT								
Input nominal voltage	3 x 400 V							
operating range (min./max.)	340 V – 460 V							
Frequency	45 – 66 Hz							
Input current in A at nominal load	17	33	50	66	98	130	163	195
Input current in A at nominal load + battery charging	21	41	62	82	123	164	205	246
Charging characteristic to IEC 478-10	IU							
Nominal DC voltage	384 V							
Max. charging voltage	461 V							
Total harmonic distortion - Standard - Optional	6 pulse Filter	6 pulse Filter	6 pulse Filter	6 pulse Filter	6 pulse Filter	6 pulse 12 pulse	6 pulse 12 pulse	6 pulse 12 pulse
INVERTER UNIT								
Nominal DC input min./max.	307 V / 461 V							
Nominal AC voltage	3 x 400 V							
Adjustable min./max.	380 V / 415 V							
Static response	< ±1 %							
Dynamic response	< ±5 %							
Correction time	2 ms							
Frequency	50/60 Hz							
Frequency tolerance without mains	±0.1 %							
Frequency synchronisation range	±1 %							
Power factor range cos φ	cap-1-ind							
Output phase current in A	14	29	43	58	87	116	145	173
Voltage wave form	sinus							
Voltage distortion	≤ 3 %							
Crest factor	3 : 1							
Overload response 1 min.	150 %							
Overload response 10 min.	125 %							
Short circuit response of I_{nom} typical	300 %							
STATIC BYPASS SWITCH								
AC voltage min./nominal/max.	3 x 380 V / 400 V / 415 V							
Frequency	50/60 Hz							
Nominal power in kVA	10	20	30	40	60	80	100	120
Overload	500 %							
GENERAL DATA								
Efficiency total up to	94 %							
Eco px (option)	up to 98 %							
Noise level depending on type	< 55–65 dB(A)							
EMC compatibility acc. EN 60040-2	C 2							
Air cooling with redundant and monitored fans	Yes							
Operating temperature range min./max.	–5° C/+40° C							
Storage temperature range min./max.	–30° C/+75° C							
Installation height NN	1000 m							
Protection degree acc. IEC 529 / EN 60529	IP20							
Equipment colour	RAL 7035							
WEIGHTS AND DIMENSIONS								
Height standard UPS (mm)	1710	1710	1710	1710	1710	1710	1710	1710
Height with max. options (mm)	1815	1815	1815	1815	1815	1815	1815	1815
Width (mm)	600	600	600	600	750	1200	1200	1200
Depth (mm)	735	735	735	735	735	735	735	735
Weight (kg)	350	370	450	470	550	800	900	900

Power Safety

Protect 4.33: Online UPS system for large datacen

Key features:

- Highest operating safety
- Optimum efficiency, even in the partial load range
- Fully loadable neutral conductor
- Short circuit proof
- Overload capacity available
- Standardised components
- Intelligent battery charging management
- Integrated logbook function with real time clock
- Terminal emulation/VT100 via RS232
- Security thanks to internal redundancy: separate -micro-processor for control of rectifiers, inverters and -electronic bypass
- Ergonomic full grafical display for ease of operation (clear letter indication 17 diff. languages)
- Integrated network interface incl. SNMP agent for -network management (optional)
- Reliable shutdown and reboot using AEG PSS network software CompuWatch via RS232-C bridge
- Manufactured to DIN ISO 9001
- CE-compliant
- Low maintenance requirement
- Remote servicing via modem
- Comprehensive service support
- Redundant fans

Classification VFI SS 111 according IEC/EN62040-3

The PROTECT 4. is a compact ready-to-install unit, with a maximum single unit capacity of 1000 kVA available now for the first time and opening up completely new dimensions in protection. Whether used to protect computer centres, file servers, telecommunications or industrial processes, the PROTECT 4. means additional safety and reliability for your systems.

Environmentally friendly

The PROTECT 4. offers the highest reliability with efficient modern technology and 12 pulse rectifier for sinusoidal input current consumption to DIN 41773. Thanks to its excellent efficiency level of up to 94 %, up to 8000 € can be saved per year in every day online use.
Increased power and reliability through parallel operation
The PROTECT 4. can be used in parallel operation with up to 8 units. This increases the power capacity, or allows for even greater safety via N+1 redundancy.

Unique control capability with three custom microprocessors

A key feature of the unit's design are the three control microprocessors.
These were specially developed by AEG PS for use in UPS. They monitor and control the rectifier, inverter and static switch units simultaneously.

ters and internet nodes

Type power at cos φ 0,8 lag. in kVA	160	220	300	400	500	600	800	1000
RECTIFIER UNIT								
Nominal voltage in V	3 x 400							
Operating range min./max. in V	340/460							
Frequency in Hz	45–66							
Input current in A at nominal load	259	357	486	649	811	973	1300	1624
Input current in A at nominal load + battery charging	328	451	615	820	1025	1230	1600	2000
Charging characteristic acc. IEC 478-10	IU							
Nominal DC voltage	384							
Max. charging voltage in V	461							
Total harmonic distortion standard/option (pulse)	6/12	12	12	12	12	12	12	12
INVERTER UNIT								
Nominal DC voltage min./max. in V	307/461							
Nominal AC voltage in V	3 x 400							
Adjustable min./max. in V	380/415							
Static response	< ±1 %							
Dynamic response 0 %–100 %–0 %	< ±5 %							
Correction time	2 ms							
Frequency in Hz	50/60							
Frequency tolerance without mains	±0,1 %							
Frequency synchronisation range	±1 %							
Power factor range cos φ	cap-1-ind							
Output phase current in A	231	318	434	578	723	867	1156	1445
Voltage wave form	sinus							
Voltage distortion	≤ 3 %							
Crest factor	3 : 1							
Overload response for 1 min.	150 %							
Overload response for 10 min.	125 %							
Short circuit response of I_{nom} typical	300 %							
STATIC BYPASS SWITCH								
AC voltage min./nominal/max. in V	3 x 380/400/415							
Frequency in Hz	50/60							
Nominal power in kVA	160	220	300	400	500	600	800	1000
Overload	500 %							
GENERAL DATA								
Efficiency total up to	94 %							
ECOpx®	up to 98 %							
Noise level in dB(A) depending on type	> 69							
EMC compatibility acc. EN 60040-2	C 2							
Product safety	EN 62040-1-1							
Air cooling with redundant/ monitored fans	yes							
Operating-temperature range min./max. in °C	–5/+40							
Storage-temperature range min./max. in °C	–30/+75							
Installation height NN	1000 m							
Protection degree acc. IEC 529/EN 60529	IP 20							
Equipment colour	RAL 7035							
DIMENSIONS								
Height standard device in mm	1910	1915	1925	1915	1915	1960	2210	
Height with max. options in mm	2015	2210	2210	2210	2210	2210	2210	
Width in mm	1200	1200	1500	2100	2100	2400	4050	
Depth in mm	960	960	960	960	960	960	1060	
Weight in kg	1670	1950	2030	3200	3480	3800	5700	

Ease of use

Software solutions

„CompuWatch" – the Shutdown- and UPS management software

... for automation in data processing.

Based on the TCP/IP network protocol, CompuWatch is applicable to heterogeneous networks where servers and computer systems with diverse operating systems require a safe (i.e. where all open files are closed) and automatic shutdown process for particular situations. It carries out its functions by passing information through security mechanisms to all UPS protected servers and computer systems by way of an intelligent UPS-to-server communications interface as well as the existing network topology. Appropriate software modules in these servers and computer systems make it possible for them to react accordingly. A terraced shutdown sequence can be achieved by configuring these software modules on the affected servers. All CompuWatch modules run as service or background processes. Individual procedures can be launched by a shell script or batch programming techniques.

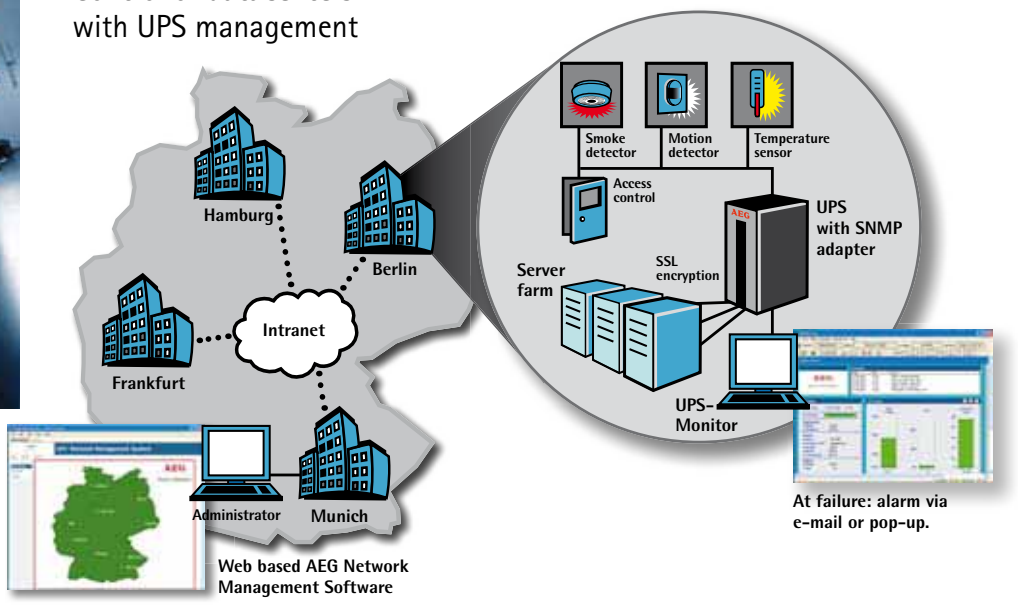
The CompuWatch client, a graphic front-end for all Microsoft Windows operating systems, permits all UPS systems connected to the network to be monitored and controlled. Aside from this, a scheduler can also be used to control the entire network. Products from AEG Power Solutions provide a total security solution for network power from a single source: the Total Network Security Solution.

Total Network Security Solution

Special features:

- Software in client/server technology
- Integration as a background process
- Supports multi-server shutdown in homogeneous and heterogeneous networks
- System activities can be programmed via scheduler and configured by event manager
- Monitoring UPS devices locally and remotely via network
- Selectable bar graphs for measured values
- Support of the wake-up-on-LAN function for sequential reboot
- Customizable batch files and scripts for the shutdown procedure
- Alerting of events via network messages, e-mails and SMS
- SSL encryption for multi-server shutdown
- Logging of all events in a log file
- Visit www.aegpartnernet.com for an overview about all supported operating systems

Example:
The Figure illustrates a heterogeneous network with a Windows NT server configured as the master and various slave servers that have other operating systems. The potential to implement the automation of shutdown and reboot procedures for the entire network, including the UPS, is inherent to these products. This means that during a power outage of long duration the entire data net can be safely shut down and turned off; the Shutdown function. Following a specified delay after power has been restored, the network will also be automatically restarted and systems will be initialised; the Reboot function.



Network management for UPS devices

... a solution for intelligent network management.

The network management software for UPS devices allows an easy control of many UPS devices even in disturbed networks. It gives the administrator an overview about all installed UPS devices and shows the actual status of the several locations. This increases the security and availability and allows a centralized administration.

The software sends an alert e.g. by email whenever a problem occurs. The network management software is supported by every common web browser and gives the necessary flexibility in administrating larger networks. UPS status information, log history and reports can be viewed everywhere via web browser.

Special features:

- Web-based remote monitoring of power supply systems in the network
- Simple operation of a complex power supply management system
- Alerting of events via network messages, emails, Short Message Services (SMS)
- Storage of all events in a logbook
- Graphics for statistical analysis
- Customized presentations with background graphics are possible

A free basic version of the software is available for up to nine UPS devices on the "CompuWatch"-CD.

Integrated solution of UPS management

The combination of network management software for remote control and the UPS management software "CompuWatch" offers an integrated solution for administration of several datacenters. With the optional sensors shutdown processes can be automated whenever there are problems in the datacenter enviroment. An SSL encrypted communication between the UPS and server secures against unauthorized access.

Special features:

- Environmental control by sensors like temperature, humidity, smoke and motion detectors
- Secured communication between UPS and server by SSL encryption
- Local alerts by actuators like warning light or audible alarm
- Alerts via network messages, emails oder SMS
- Complete automated server management via programmable actions

Ease of use

Hardware: Extensions & accessories

Remote Panel

Remote signal indicator for professional datacenter management

The remote panel displays remote UPS status in real time. An additional bar graph shows the current UPS load and remaining capacity in emergency power mode. Besides the visual indicators, the panel has an acoustic alarm (which can be disabled), plus a shutdown contact to enable a remote UPS shutdown in the event of an emergency. The remote panel can be installed at a distance of up to 500 meters. Data and power are supplied to the remote panel over a conventional patch cable. The remote panel is available for Protect C. Tower (6 kVA and higher), Protect 1. and Protect 1.M UPS units.

Part numbers	Remote Panel # 600 000 5881

Power distribution units

Power distribution for professional datacenters

These power distribution units are designed to distribute power from UPS outlets to multiple connected loads. Various models are available with a choice of grounded IEC320 C13 and C19 sockets for connecting equipment. The sockets are protected against overloading, either individually or in pairs, depending on the connector type. The connection options provide an effective means of defining selection criteria to meet required power-down conditions. LEDs indicate the current operating state.
Thanks to slot-in rack flanges, the PDUs are easy to install in a standard rack chassis. For flexibility, the flanges can be removed for desktop use. The PDUs have robust aluminum enclosures offering exceptional rigidity and durability.

PDU 10-1 # 600 000 6684
PDU 16-1 # 600 000 6829
PDU 10-2 # 600 000 6831
PDU 16-2 # 600 000 6832
IEC Distribution Bar # 600 000 9254

Manual Bypass Switch

Manual bypass switch for maintenance and battery tests

The external manual bypass switch, an optional add-on for the Protect B., B. PRO, C., C.R, D., 1. and 1.M series of UPS systems, is used to bypass a UPS – for example, to carry out maintenance – without interrupting the supply of power to connected loads. Besides simple bypass operation, it features an additional setting to enable UPS testing. The switch is equipped with individually protected power connectors to supply power to loads directly.
The external manual bypass switch has three settings:

1. UPS mode: Loads are supplied with power via the UPS.
2. Service mode: Connected loads are powered directly from the mains supply. This setting also enables the UPS to be tested.
3. Bypass mode: In this mode, loads are powered directly from the mains supply. The attached UPS is fully disconnected from the circuit and can be removed for maintenance or replacement.

MBS 2000 # 600 000 3039
MBS 3000 # 600 000 3040
MBS 6000 Rack # 600 000 5205
MBS 10000 # 600 000 7684
MBS 24000 # 100 000 2021

Power Distribution Box

Parallel board, manual bypass and distribution

With the compact parallel switch panel, users can set up a parallel system comprising up to three Protect C.6000 / C.10000 or up to three Protect 1.100 / 1.150 or 1.200 units without needing to restructure an existing low-voltage main distribution system. Combining up to 24 separately protected, ready-made circuits in an output distribution unit built into a parallel switch panel, the PDB box eliminates the need to set up or reorganize a sub-distribution system.
Offering active redundancy and designed for use with the Protect C. range of single-phase UPS units (up to 30 kVA or 20 kVA) and the Protect 1. range of three-phase-input UPS units (up to 60 kVA or 40 kVA), the switch panel allows users to connect devices in parallel for enhanced performance and single or multiple redundancy. Each UPS unit can be disconnected – from the mains supply on the input side and from the protected busbar – without interrupting the supply of power to connected loads. In addition, the manual bypass can disconnect the entire parallel UPS system – for maintenance, for example –without cutting power to attached devices. A remote signaling contact indicates the current operating status.

PDB for Protect C. # 100 000 1852
PDB for Protect 1. # 100 000 1853

Ease of use

Communication: Extensions & accessories

Relay card

Communication device for AS / 400

This relay card is an option for UPS series Protect B./B. PRO/C./C.R/D./1. and 1.M and enables the communication via potential free contacts. The contacts can be configured as open and shut. The status notifications will be transmitted by a 9 pin Sub-D socket. The relay cards are optimized for the IBM AS400 but can also be used for other applications.

SiteManager

Network based UPS management device

The SiteManager is a professional-grade monitoring system. The 19" rack unit can be used to monitor equipment cabinets and rooms as well as industrial applications. With its plug-and-play support for a range of sensors and actuators, the SiteManager is exceptionally quick and easy to install. It has eight digital ports that accept an extensive range of contact sensors, including smoke detectors, motion detectors and door contacts.
It additionally includes eight inputs for analog signals (0-10V). Each input is individually configurable to support everything from temperature and humidity sensors to custom sensor devices. There are also eight separate relay outputs for controlling loads. These outputs can be controlled either manually by users or automatically in response to defined events. All alarm states are indicated on the front panel be light-emitting diodes. The electrical connections are located on the monitoring unit's rear panel.

Part numbers	
	Relay card for Protect B. from 1500 VA # 600 000 5196
	Relay card for Protect C. / C.R / 1. / 1.M # 600 000 3932
	Relay card for Protect B. PRO # 600 000 9252
	Relay card for Protect D. # 600 000 9253

	SiteManager # 600 000 7349
	Temperature sensor # 800 002 2489
	Smoke detector # 800 002 2495
	Motion detector # 800 002 2494
	Audible alarm # 600 000 7361

Environment Manager

Management device for several environment sensors

The Environment Manager is a universal sensor management device designed as a system add-on for the SNMP PRO Adapter. It can manage up to eight analog sensors, four digital contacts and four digital switches simultaneously. The device can also work with other kinds of sensor units – for humidity, pressure, tank fill levels and chemical concentrations, for example – provided the signal voltages from the attached sensors are within defined values (0-10V for analog inputs, 48V/500mA for digital inputs/outputs). The digital outputs can be configured for a default state of open or closed. Sensors are simply connected to a free RJ11 port. If more than four sensor devices need to be attached, sensors are available that are equipped with an expansion connector, allowing multiple sensors to be connected to one another. If all the RJ11 ports are occupied, splitters can be used to provide additional ports.

Environment Manager # 800 002 2488
Temperature sensor # 800 002 2489
Motion detector # 800 002 2494
Smoke detector # 800 002 2495
Audible alarm # 600 000 7361

SNMP(pro) Adapter

UPS management device via network

Available in two versions, the SNMP adapter enables users to monitor the status of UPS units via the Web or WAP. It can also initiate a staggered shutdown of key servers if the need arises, and can restart the servers via wake-on-LAN, providing automatic system shutdown and reboot capabilities. In addition to these features, the adapter has an integrated RFC1628-compliant SNMP agent, allowing the UPS to be configured and monitored in HP OpenView, SunNet Manager or other network management software.
The PRO version of the SNMP adapter can additionally incorporate room access control, air-conditioning, and smoke and fire detector systems. In combination with the EnvironmentManager, the SNMP PRO Adapter is even capable of processing temperature and humidity sensor data.

SNMP adapter # 600 000 4036
SNMPpro adapter # 600 000 1271
External SNMPpro adapter # 800 000 9965
Temperature sensor # 800 002 0878
External relay board # 600 000 5994

Competence

Service: Your Power Partner for reliability

„Only a professionally serviced and maintained UPS offers the highest possible availability with effective cost control."

Based on our high standards and decades of experience, we are also cost-effective, efficient and rapid when it comes to servicing. Pro-Care Comfort Maintenance service for PROTECT C, 1 and 1.M. Can be ordered as a service package at any time.

For the first 24 months after the initial purchase we provide a comprehensive advanced replacement service for the device and battery from the Compact UPS series (Protect Home. / A. / B. / B. PRO / C. / C. Rack / D. / 1. / 1.M). Additional service packages, which address all of the user's needs, are available when purchasing the UPS. These packages ensure optimal cost control over a period of up to 60 months.

The following service packages are available:

Pro-Care Garant

Register your UPS within two months from date of purchase and you will get the warranty extention "Pro-Care Garant" for free. So we provide an overall warranty for 36 months on UPS and battery.

The registration form is available at www.aegpartnernet.com

Pro-Care Garant PLUS

Warranty extension to 60 months from the date of purchase with advanced replacement of the UPS within the warranty period. This can be optionally arranged during the first year after purchase.

Available for the Protect C. / C. Rack / D. / 1. and 1.M series.

Repairs and individual service measures available on request!

Rely on the experts to reduce failure costs and increase system availability

Because AEG Power Solutions is a world class system provider, you can rely on a global network of 20 Services Centers supported by over 150 field engineers and more than 100 certified service partners around the world. From power solution selection to process installation and commissioning, our certified experts exceed your expectations. Their excellent service helps you achieve the lowest operating cost for your mission-critical power solution. A Global Service Team renowned for its short response time and trouble shooting efficiency ensures the reliability of your installed power solution.

Choose the right service maintenance contract for your power solution

	Pro Care Safe	Pro Care Excel	Pro Care Premium
Service Description	Annual scheduled on-site preventive maintenance	Annual scheduled on-site preventive maintenance including defective parts replacement	Annual scheduled on-site preventive maintenance including defective parts and battery replacement
Visual inspection	●	●	●
Functional assessments	●	●	●
Organic and inorganic contaminants removal	●	●	●
Battery efficiency examination	●	●	●
Computerized numerical diagnostic	●	●	●
Parameters adjustment and optimization	●	●	●
Same day repair upon customer approval	●	●	●
Maintenance protocol registration	●	●	●
Functional walk through	●	●	●
Software update	●	●	●
24/7 hotline	●	●	●
Complementary phone support	●	●	●
Standard work week hours	●	●	●
Includes travel expenses and on-site service engineers	●	●	●
Includes defective parts replacement[1]		●	●
Includes battery replacement[1]			●
Battery units replacement based on overall system lifetime			●
3-year service contract	●	●	●
Subscription at end of warranty period		●	●

1 Excludes unrelated failures or acts of god

AEG

Power Solutions

PERFECT IN FORM AND FUNCTION **AEG**

Due to our policy of continuous development, data in this document is subject to change without notice and becomes contractual only after written confirmation.

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